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THE thirty-fifth annual meeting of the American Association for the Advancement of Science began last Wednesday, August 18th, in Buffalo. The attendance was quite large. The address of the outgoing President, Prof. H. A. NEWTON, of Yale, was delivered in the presence of over 1000 people. The incoming President is Prof. EDWARD S. MORSE, of Salem, Mass. Eighty-eight new members were elected. The usual lectures were delivered by the vice-presidents before their several sections.

"BOOMING" is a term originally applied to floating timber or saw-logs down streams by means of intermittent floods created by suddenly opening dams erected to collect the water. The logs are carried forward on the flood wave where the ordinary water of the stream would be insufficient to float them. This is also called "splashing" in some lumbering districts.

When applied to mining companies, it generally means an abnormal amount of laudatory newspaper and other notices, and may or may not be exaggerated estimates of riches. The object is generally, though not invariably, to float off stocks on the public that would not move under the usual tame statement of facts.

IN another column, we publish a highly interesting communication on the Mansfeld Copper Mines, by Mr. ARTHUR F. WENDT. While, of course, the technical details of these mines and smelting-works are well known to most of our readers, the article is of special interest at the present moment, containing, as it does, such a clear *exposé* of the economic differences between our own copper mines and those of the Mansfeld Company. By his perfect familiarity with all the details of American practice in this branch, Mr. WENDT is specially able to point out the salient features of advantage or disadvantage under which each side is working. As for the reaction he predicts as the conclusion of his investigations, while sincerely hoping it may occur, we are hardly as sanguine that it will be as radical or as near as he indicates.

THE Blue Book of Mining and Mineral Statistics of Great Britain and Ireland for the year 1885 has just been received. This is nearly a month later than we had it last year, and we should feel inclined to criticise severely this tardiness that appears to us so unnecessary, were it not that our own Interior Department is still more dilatory in getting out the report on our own country. Too much stress can not be laid on the necessity of publishing these statistics at the earliest possible moment, as their chief utility consists in their freshness. The volume before us, however, is so thorough and complete, and withal so concise in form, that we can but highly compliment not only the Chief Clerk of Mineral Statistics, RICHARD MEADE, but also the whole corps of mining inspectors. In another column, we give a summary of some of the chief points of interest contained in the volume.

ON another page, will be found the official report of the Tamarack Mining Company's operations for the past year. While the figures given show that the yield of the Tamarack rock, so far, is very considerably below that of the Calumet & Hecla, the percentage of mineral in the stamp-rock being only 3·65, still we must bear in mind that all the product given in the report was obtained from a length of less than 400 feet on the lode, and would hardly be an average of the whole. The management certainly deserves much credit for the energetic way in which it has accomplished even these results under the many difficulties with which the opening of any new and deep mine and the production of large quantities of ore simultaneously are necessarily accompanied.

It is but a little over six months since the mine began to produce. All the hoisting, not only of the ore, but also of the barrens produced in driving levels and cross-cuts, has to be done through one shaft, with scarcely elbow-room below to do the necessary work. When the No. 2 shaft is completed, there seems little doubt but that the Tamarack will attain a yield of 500 tons of rock a day. The chief point now of interest seems to be whether the lode at 2200 feet and lower depths is permanently poorer than in the upper portions worked by the Calumet & Hecla. From the fact, however, that the fourth level (the lowest at present worked) is, according to official statements furnished us, yielding rock with 5 per cent mineral, we see no reason why the average run of the whole lode should not be pretty uniform with the results obtained by the Calumet & Hecla.

PATENTABLE NOVELTIES—LEADVILLE AND ITS INVENTORS.

We notice in the *Mine, Stack, and Rail*, of Pueblo, Colo., a statement, purporting to come from a patent solicitor of the best standing, as to "what is patentable." According to this authority, "If old materials and old principles are used in a state of combination or produce a new result, a valid patent may be obtained." Moreover, "a combination, though simple and obvious, if new, is patentable. A combination, to be patentable, must effect a new result, or an old result by a new mode of action. There must be novelty either of product or process."

This opinion seems to us to overlook an essential feature, namely, that of *invention*. Mere novelty does not necessarily involve invention; and an *obvious* combination of old elements certainly does not involve invention. It is true that the Patent-Office is accustomed to give the benefit of the doubt on this point to applicants for patents. But the courts are more careful; and it is a valid defense against any patent, especially if it be for a "combination," that the process or apparatus it describes is simply such an adaptation to special circumstances as any expert in the art would make, under the pressure of those circumstances.

Our contemporary appears to have obtained the above-quoted opinion *à propos* of the patent elevated slag-dump of Messrs. BROTHERTON and

COLBURN, which is in use at the American Works at Leadville. In a previous issue, April 24th, the same journal remarks, "We find the opinion general that there is no patent about it;" and gives the claims as declared by the inventors, and allowed by the Patent-Office. In its later number, it describes the invention itself, as follows:

"This invention relates to the utilization of the superficial area already occupied by a slag-dump, by filling in on top thereof successive layers of slag, and thus by increasing the depth or thickness at any smelting-works, contracting largely the surface-area required for the dump. . . . To dump slag from a blast-furnace at a higher level than that of the furnace-hearths, there is an inclined railway built on trestle-work with double track of ordinary railroad iron, the upper end being of an elevation equal to the hight to which the new dump is to be built up. A car, built preferably of iron, and of such a size as to accommodate with ease six or more slag-pots of the ordinary construction, is on each track. These two cars are connected together with an iron or steel wire cable running over two sheaves at the upper end of the incline, and thus the weight of each car, with its load of slag-pots, is exactly counterbalanced by the weight of the other, and the power necessary to operate the system has to overcome only the actual weight of the slag raised on the car and the friction on the two sheaves. The lower end of the incline reaches below the level of the old dump sufficiently to allow the top of the slag-car, when at the lower end, to be on an exact level with the surface of the old dump, and with the roadway leading from the furnaces. The cars are so arranged that while one is being loaded at the foot of the inclined plane, the other is being unloaded at the top. The slag-pots are of the ordinary construction, and run on to the lower car by hand, and also unloaded and dumped by hand in the ordinary way at the top of the incline."

We have not had the advantage of seeing either the apparatus or the patent and drawings of Messrs. BROTHERTON and COLBURN; but judging from the foregoing description, they have got up a double incline, with a pit at the bottom to receive the gigs or carriages and permit the trundling of barrows upon them. This is an excellent device, and as old as it is good. It has been in use for many years for hoisting ore, coal, refuse, and slag, at numerous places in this country and in Europe. There is nothing whatever new in it, so far as this description shows, except its application in a new place by persons who never used it before. In other words, it is a combination of old elements, with Leadville and Messrs. BROTHERTON and COLBURN as new elements. But we submit that these new elements are not the product of invention.

But turning now to the claims reported to have been granted by the Patent-Office, we find another new element, to wit, the Examiner—in fact, the freshest of the lot. For, if we can trust our contemporary's report, he has allowed the following claims:

"1. The combination with the dumping ground and with a roadway leading to furnaces of an inclined elevated railway extending over and above the dumping ground."

We recommend this claim to the attention of Mr. FIRMSTONE of Glendon Iron-Works.

"2. The combination with the roadway leading to the furnaces, and with the dumping-ground having a recess, of an inclined railway leading from said recess to an elevated position."

We recommend this claim to the attention of Mr. FACKENTHAL, of the Durham Iron-Works.

"3. The combination of the dumping-ground recess, inclined railway, cars adapted to said railway, and platform arranged to be level with the roadway leading to the furnaces when the cars are at the lowest position."

That will amuse Mr. JOHNSON, of Longdale.

"4. The combination of the dumping-ground having a recess, an inclined way extending at one end into the recess and below the surface of said dumping-ground and at the opposite end up and over the said surface, and cars traveling on the way and adapted to receive the slag-trucks from the roadway leading to the furnaces."

The managers of the Clausthal dressing-works, of the Coleman and other furnaces, and of innumerable collieries, who are using this precise combination for every thing else but lead-slag, will get new ideas of the inventiveness of Americans when they read this claim. But there are stronger ones to come. Claims 5, 6, 7, 8, and 9 cover the combinations with the inclined railway of the cars, cable, sheaves, and drum; the combination with the inclined railway of the car having a horizontal platform, a clutch, a connection on the platform for the clutch, and a foot-lever loosening the clutch; the combination with the inclined railway of a power-shaft, drum-shaft, friction-pulley, brake-shoe, and adjusting devices; the combination of the car, platform, and automatic coupling; and finally (the only claim not for a combination), the shaft formed eccentrically at one end, thereby permitting pulleys or wheels fastened thereon to be thrown in or out of gear with adjacent wheels or pulleys.

There is a fine pan-electric brilliancy about this whole series of claims which adds luster even to the halo already surrounding the present administration of the Patent-Office.

Doctor JOHNSON said of OLIVER GOLDSMITH that he was capable of traveling through Europe and bringing back a wheelbarrow as a novelty. This was high praise; but higher praise is due to him who stays at home and invents a wheelbarrow. And highest of all stands the sage who, searching through the records of science, discovers that nobody has ever thought of patenting a wheelbarrow before, and therefore bestows upon the inventor the award due to his bold originality.

Verily, the combination (with the usual permutations) of such an examiner with all existing arts and devices would indeed "lend new importance to common things," and greatly exalt the claims (not to say the specifications) of the human race. *

CORRESPONDENCE.

[We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of the writer. Initials only will be published when so requested.
All letters should be addressed to the MANAGING EDITOR.
We do not hold ourselves responsible for the opinions expressed by correspondents.]

Silicate-Aluminate Slags.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: Since sending you my article on Silicate-Aluminate Slags [*see* ENGINEERING AND MINING JOURNAL, July 17th], I have proved the correctness of the views expressed by a further smelting of 140 tons of ore, containing equal percentages of alumina and silica. The most acid slag, and at the same time the best one, that I could produce in the furnace and keep taps in good order and the furnace from scaffolding, was of the following formula: $2RO + Si(Al_2)O_3$. I assign silica the old formula SiO_2, because in that case Al_2O_3 gets equal to SiO_2; and on this account, I should really like to assign for metallurgical purposes to silica the formula Si_2O_3, and put it in the same class with Al_2O_3, Fe_2O_3, and Cr_2O_3. I have tried very hard to see if I could not smelt this gangue-rock here, consisting of $\left.\begin{matrix}Al_2O_3\\MgO\end{matrix}\right\}2SiO_2 + MgO,Al_2O_3$ (as substitute for FeO, Cr_2O_3, which is quite a common mineral in this serpentine belt), on the supposition of alumina taking, partially at least, the *rôle* of a base in slag formation. But it would not do. Scaffolding was the immediate and unavoidable consequence; that is, a gluey, sticky aluminate slag of a very acid character, not fusible in a small cupola. CARL HENRICH.

NELSON, NEW ZEALAND, July 16, 1886.

OFFICIAL STATEMENTS AND REPORTS.

Tamarack Mining Company, Mich.

The second annual meeting of this company was held at Boston on the 12th inst., and the following directors were elected: Joseph W. Clark, Nathaniel Thayer, John M. Forbes, George F. Bemis, John Denison, of Massachusetts; Horace Fairbanks, of Vermont; and John Daniell, of Michigan; the old board. The directors re-elected Mr. Joseph W. Clark President and Mr. Albert S. Bigelow Treasurer, and appointed Mr. Frederick Beck Auditor. A resolution was passed changing the date for holding the annual meeting to the first Thursday of October.

The annual report shows the following summary of operations for the past year:

The product of mineral was 2,638,020 pounds, which gave 1,979,400 pounds of refined copper, for which has been realized		$198,944.56
From interest receipts		2,581.12
Total gross income		$201,525.68
Expenses:		
Running expenses at mine	$144,301.37	
Smelting, transportation, and all other expenses	16,163 57	160,464.94
Mining profit		$41,060.74
Realized from sale of 350 shares Hancock & Calumet Railroad stock		35,000.00
Balance of assets July 1st, 1885	$120.411.44	
Expended in mine plant	95,872.64	24,538.80
Balance of assets July 1st, 1886		$100,599.54

Of the running expenses, $103,258.59 was for underground expenses; profit on supplies, $7257.90, brings it down to $96,000.69; and $48,300.68 was for rock, house, labor, supplies, transportation, and stamping, $28,903.20 being charged to the last item. The amount expended in mine plant or for construction, was divided between buildings and machinery. The total expended at the mine was $240,174.01. The following summary is interesting:

Rock stamped	36,129 tons.
Product of mineral	2,638.020 pounds.
Product of refined copper	1,979.400 "
Yield of refined copper per cubic fathom of ground broken	923 "
Yield of mineral per cubic fathom of ground broken	1.230 "
Percentage of mineral in stamp rock	3·650
Percentage of refined copper in stamp rock	2·738
Refined copper, cost per pound at mine	5 895 cents.
Cost of smelting, freight, commission, and Boston expenses	1·599 "
Total cost per pound of refined copper laid down in New York and sold	7·494 "

The assets and liabilities are stated as follows:

ASSETS.

Cash in bank at Boston	$3,977.02	
Suspense account—stamp-mill site	833.80	
Hancock & Calumet Railroad Company 6 per cent bonds	57,000 00	
Assessment No. 1	108.00	
Supplies on hand at mine	28,882.87	
Cash on hand at mine	169.23	
Accounts receivable at mine	564.17	
Wood and timber land	14,832.00	
Balance due on 350 shares Hancock & Calumet Railroad stock	28,000.00	
Copper on hand, 1,900,571 pounds, at 10 cents	190,217.10	
Total cash assets		$324,584.19

LIABILITIES.

Drafts outstanding	$28,427.70	
Accounts payable at mine	52,356.95	
Bills payable	108,200.00	
Loan account	35,000.00	
Total liabilities		223,984 65
Balance of cash assets July 1st, 1886		$100,599.54

In comparison with last year's report, total cash assets have increased $200,312.32, and liabilities $220,124.22, while the balance of cash assets, which, July 1st, 1885, was $120,411.44, is now $100,599.54.

The progress of our mining operations for the past year has, in the main, met our expectations. Up to this time, the development of the lode is most encouraging.

We have proved that our lode is identical with the Calumet & Hecla in all respects, and on the whole as rich.

We have demonstrated the fact that depth is no hinderance to cheap mining. On the contrary, we have shown, from the result of steady work day in and day out for months, that more than five times the amount of rock can be hoisted through a vertical shaft than through one of like dimensions on the plane of a lode, as is the custom of copper mining elsewhere on Lake Superior. This result would not have been

THE MINERAL PRODUCE OF THE UNITED KINGDOM FOR 1884 AND 1885.

DESCRIPTION.	1884.				1885.			
	MINERALS RAISED.		METALS CONTAINED IN ORES.		MINERALS RAISED.		MINERALS OBTAINABLE IN SMELTING.	
	Quantity.	Value at mine.	Quantity.	Value at the average market price.	Quantity.	Value at mine.	Quantity.	Value at the average market price.
	Statute tons.	£	Statute tons.	£	Statute tons.	£	Statute tons.	£
Alum clay (Bauxite)	8,560	4,280			9,030	3,657		
Alum shale	1,960	245			2,331	292		
Antimony ore	4	40						
Arsenic	7,905	57,841			8,129	56,857		
Arsenical pyrites	1,762	1,143			1,911	1,573		
Barytes	20,062	29,356			26,153	30,296		
Bog iron ore	6,453	1,935			8,066	2,420		
Clays (excepting ordinary clay)	2,695,710	667,396			2,531,198	600,934		
Coal	160,757,779	43,446,183			159,351,418	41,139,408		
Cobalt and nickel ore	66	237			109	422		
Copper ore	41,728	109,427	3,295	202,591	36,241	79,763	2,746	135,415
Copper precipitate	421	3,186	55		138	1,149	27	
Fluor spar	581	730			423	491		
Gold ore					35	7	3½ oz.	14
Gypsum	109,922	45,441			112,078	47,753		
Iron ore	16,137,887	4,463,275	5,626,644	13,644,612	15,417,982	3,969,719	5,353,524	12,491,556
Iron pyrites	29,104	18,139			29,860	18,517		
Jet (incomplete)								
Lead ore	54,485	401,555	40,075	452,847	51,362	407,600	37,687	433,400
Manganese ore	909	1,439			1,688	2,411		
Ocher, umber, etc	9,191	18,976			13,328	23,459		
Oil shale	1,518,871	386,780			1,770,413	447,302		
Phosphate of lime	51,866	103,976			30,000	50,000		
Salt	2,332,704	678,343			2,207,683	780,615		
Silver from lead ore			325,718 oz.	68,791			320,520 oz.	64,938
Slates and slabs	485,664	1,174,020			468,954	1,175,772		
Stone, etc		8,850,854				8,849,102		
Sulphate of strontia	11,422	22,844			9,800	4,900		
Tin ore	15,117	669,254	9,574	809,740	14,376	662,390	9,331	883,803
Wolfram	64	1,104			374	4,799		
Zinc ore	25,563	74,029	9,919	152,835	24,668	67,000	9,778	146,100
Totals		61,232,028		15,331,416		58,428,608		14,105,226

accomplished had not our machinery and appliances been of the very best.

Our openings on the lode are still very limited, and can be extended to meet our wants only by almost unlimited patience and energy; for it will be readily seen that our opportunities for the speedy opening up and development of the lode are necessarily restricted, for the reason of having but one shaft from which to run our levels and cross-cuts.

It will be remembered that the surface of our productive property is over 2200 feet in the bowels of the earth, with only a single opening to the light of day.

Proving the productiveness of the Calumet & Hecla lode to this great depth gives it a value almost beyond computation, contingent only, it would seem, on the future value of copper. On this point, we shall have no misgivings while the present extended use, and consequent increased consumption, all over the world continue. It will not be forgotten or overlooked by our stockholders that this vast inheritance falls ultimately into the possession of Tamarack; for surely and legitimately every one of the eleven northern shafts of the Calumet & Hecla mine falls by its natural inclination or "dip" into our property, and it is a well-known geological fact that every lode or bed, whether conglomerate or amygdaloid, or any thing else, follows this universal law of "dip."

Our smelting arrangements are not as satisfactory as we could wish, and should be changed if our mine continues to meet our expectations. The entire product of all the Lake Superior mines, some 50,000 tons, is now and always has been smelted by a single company, chiefly owned and controlled in Connecticut by three or four of the largest copper rolling and manufacturing companies in the country, whose interests are not only not in harmony with the producer, but naturally favor the consumer. No recommendations are made at this time, as we are under a contract for smelting until the summer of 1889, but we think it is a matter that should not be overlooked. With our new allies, the Kearsarge Mining Company and the Iroquois Copper Company, and with the co-operation of other outside companies that will gladly join us, this three-year contract need not hinder or delay us in carrying out any reform that experience may suggest.

MINING AND MINERAL STATISTICS OF GREAT BRITAIN AND IRELAND FOR THE YEAR 1885.

These statistics show that during 1885 the whole number of persons employed in and about the mines of the United Kingdom of Great Britain and Ireland amounted to 561,676. This shows a falling off from 1884 of 2820. The decrease is among the persons employed in metalliferous mines only, as the number employed in the coal mines shows a slight increase over 1884. It is pleasing to be able to note even a very slight decrease in the number of fatal accidents during the year. The number of fatal accidents was 866, and the number of deaths occasioned by them 1214, showing a decrease for the year of 51 in fatal accidents, but an increase of 216 in lives lost. The proportion of deaths, however, is 1 to 462, whereas the average proportion of the preceding ten years was 1 to 458.

From the accompanying table, it will be seen that the production of the year has been in nearly all branches considerably better than that of the year previous, with the exception of coal, which shows a decrease of nearly 1½ million tons; iron ores, with a decrease of three quarters of a million tons; copper ores, with a decrease of over 5000 tons; and salt, with a decrease of 125,021. Under the head of salt production, we find that of the total amount only 190,480 tons were rock-salt, the remainder being salt obtained from brine. Of the latter, 111,600 tons were consumed in the brine used for making alkali under Solvay's ammonia process.

THE MANSFELD COPPER MINES.

Written for the Engineering and Mining Journal by Arthur F. Wendt.

The old copper mines and works of Mansfeld have been so repeatedly written about that a long description of the metallurgical process would seem superfluous for the readers of the JOURNAL. Not so generally known, however, and of even greater interest to the practical man, are the economical conditions under which the Mansfeld mines are operated. This is especially of moment now, when the fierce competition of the old and new world for supremacy in the copper markets of the world has depressed the price of the metal to a hitherto unknown extent. To those not acquainted with the mines and works, the following short description accompanying the numerous statistics will suffice.

The Mansfeld copper-silver ore is a bituminous shale, aggregating from 4 to 16 inches in thickness, separated into bands by one or more partings of rock. The ore-bearing formation is underlain by conglomerate and overlain by gypsum containing occasional bodies of rock-salt. All these measures are part of the Permian formation, and their outcrop can be traced for many miles.

Formerly, the shale was worked on the edge of the Thüringer Wald, thirty miles southwest of the present scene of operations, which are located on the southern slope of the Hartz Mountains. Between Sandersleben on the north and Eisleben on the south, a distance of about ten miles, the Permian measures form a basin with a semicircular outcrop dipping at an angle of seven degrees toward the east. It is this basin only that is now exploited. All other localities have been abandoned as too lean.

Parallel with the outcrop, and at a distance of two or more miles therefrom, are sunk a number of large and finely equipped shafts. From them the ore-bed is reached by cross-cuts in the compact foot-wall. The ledge is opened from these cross-cuts by levels; and when unwatered, it is worked on the pillar and stall system. The pillars are finally robbed, and the shale only is shipped; the refuse remaining behind in the stopes serves to support the roof. Underground tramming is done on T rails in trains of iron cars of 1000 pounds capacity. Mule power is generally used for the traction of the trains in cross-cuts and levels. Owing to the porous character of the roof, there is a large inflow of water, and pumping is one of the large expenses of the mine. Now and then, a sudden inrush of water is noticed, which is ascribed to the tapping of reservoirs that have been formed by the solution of large bodies of rock-salt. Several times in the history of the Mansfeld mines, such disastrous floods have occurred. The last was in 1884, and it drowned out a large part of the two lowest levels. In the short space of a week, the water (a strong brine) increased from about 800 gallons a minute to over 4000.

The principal pump-shaft of all the mines is located near the town of Eisleben, and is called Otto No. 20. A 600 horse-power compound engine, built at Seraing, of a capacity of about 2500 gallons a minute, raises the waters from a depth of 420 feet. A second engine is building, if not already finished, to conquer the water at the two lowest levels.

In the fiscal year of 1884 to 1885, the Mansfeld Company mined 505,797 tons of shale. The cost of production was increased $1.25 above the previous year by reason of the influx of water before referred to, and it amounted to a total of $8.02 per gross ton (1000 kg.) of ore raised.

The production per shift of 8 hours for each man employed in the stopes for a series of years was as follows:

	1881. Pounds.	1882. Pounds.	1883. Pounds.	1884. Pounds.
Division 1	664	674	667	557
" 2	430	471	449	439

The decrease noted in the above table in 1884 was due to the drowning

of part of the two lower levels, which led to the stoping of portions of the vein that were thinner than usual.

To produce a ton of ore required the removal of 2·7 square yards of vein; and on this basis, at the end of the fiscal year 1885, there remained ready for stoping, at the present rate of production, about six years' supply. It will, however, be noted that the partial stoping of this reserve ground led to a very considerable increase in cost; and undoubtedly much of the ground held as reserve is of but little value from a mercantile stand-point. The best is naturally removed first. All the stoping is done in eight-hour shifts, two or three shifts being worked according to the requirements of the smelters.

Among the miners, all nationalities are represented. Lately, there has been a considerable influx of Italians. Wages average less than one half those current in Lake Superior, and not over one quarter those paid in Montana and Arizona. The average earnings for the fiscal year, of all men working in the stopes (all on contract) was as follows: Upper division, 73 cents; lower division, 72 cents.

The miners at work on shafts, cross-cutting, etc.—in fact, generally on all development-work, were, as usual, the best of their respective classes, and were paid somewhat higher wages. Their average earnings were as follows: Upper division, 96 cents; lower division, 92 cents.

Notwithstanding these low wages and the general introduction of every labor-saving contrivance, the cost of the ore appears high, based on our American practice; and the same is true to an even greater degree of the cost of dead-work, where, to effect great speed, it has been let on contract. A few examples will illustrate.

Sinking Otto shaft No. 2, 15 feet diameter, from the 820-foot level, a distance of 100 yards, in conglomerate, red sandstone, and shales, cost, in 1885, about $120 per running yard. Speed, about one foot a day.

Sinking Otto shaft No. 3, 20 feet diameter, from the 870-foot level, a distance of 140 yards (to the lowest level), cost, per lineal yard of sinking, $110. Including masonry lining, $214.

Cross-cutting in conglomerate from bottom of Ernest shaft No. 3, with hydraulic drills, contract price $32 per lineal yard. The cross-section of this drift was 7 by 9 feet, and the contract price did not include the hoisting of the waste, nor did the contractors furnish power.

The Brandt hydraulic drills were used in the heading, and the average advance per day, with three shifts of men, was seven feet.

Machine drilling with compressed air, where used, gave a mean speed of four times that of hand labor at double the usual cost.

The explanation of these comparatively high prices, coupled with low wages and materials, can only be found in a lower efficiency of the European miners.

A generally lower standard of life must have its effect, if not on the physical vigor of a man, at least on his mental capacity to use his physique to the best advantage, and although one does not see any actual want of the necessaries of life among the miners of Europe, the vigor and snap characteristic of the American workman seem to be entirely lacking.

The aggregate cost of all development-work in the fiscal year ended in 1885 was as follows per ton of shale mined: Upper division $0.85; lower division, $1.20. The total number of lineal yards of drifts and levels of all kinds run for development during the year was 8023, at a cost of $19.30 a yard; that is, one yard of drift for every 63 tons of ore mined.

The cost of tramming and hoisting per ton of ore was as follows: Upper division, $1.02; Lower division, $1.41. And the total expenses for new machinery and other permanent improvements during the year was $340,000. Among the largest expenses for such improvements are the new pumping-engines, necessitated by the sudden influx of water. Then follow hoists, and then Guibal fans for ventilation.

The shales as mined are hauled by narrow-gauge railroads, which connect every part of the works and mines, to the ore-smelting works. Of these, there are five, as follows. They smelted during the fiscal year ended 1885 the number of tons (1000 kilos) of ore set opposite their names:

	Tons.
Krug smelter	155,070
Koch smelter	132,860
Kupferkammer smelter	112 000
Eckardt smelter	105 331
Sangerhäuser smelter	11,230
Total	516,491

The average yield per gross ton of all this ore was 57 pounds of copper and 5·4 ounces silver. That is considerably more copper per ton than any of the Lake Superior mines, excepting only the Calumet & Hecla and Tamarack.

With the value of silver added, the raw Mansfeld ore exceeds, ton for ton, the value of any of the stamp ore treated on the Lake. Several of the mass copper mines may contain a small quantity of more valuable ore; but no ore in quantity of the value of Mansfeld ore is treated anywhere in America, with the exception of the terrritories, where, as before stated, labor is four times as costly, and supplies even more so.

The smelting process employed at the Mansfeld works consists of the roasting of the shale in heaps and smelting in blast-furnaces for first matte. In the roasting, the bitumen contained in the shale serves as fuel, a very light bed of wood being sufficient to ignite the piles. The fine ore is screened, pressed into bricks, and built into the roast-piles. The roasting is done in the open air, and the piles are generally long and narrow. The roasted ore is smelted in round blast-furnaces with coke fuel for matte.

Mansfeld copper furnaces have been repeatedly described. Suffice it, therefore, to say that they are round shaft-furnaces, from 20 to 25 feet high, and about 6 feet diameter at the tuyeres. These tuyeres are from 4 to 7 in number, and fitted with water-coils and breasts. Blast is furnished by vertical direct-acting blowing-engines. The tops of the furnaces are closed by bells and hoppers, and the gases are taken off and burned under the boilers, and, in two of the works, in hot-blast stoves that heat the blast to a temperature of 400 degrees Fahr. The cold-blast furnaces at Helbra average 100 tons a day, burning 20 per cent of coke of very good quality. At the Krüghütte, at Eisleben, 160 tons a day are put through each furnace, with hot-blast and a consumption of 14 per cent of fuel.

The following is the exact consumption of coke in hundredweights per ton of shale at the various works:

Krug smelter	4·13
Koch smelter	3·94
Kupferkammer smelter	2·58
Eckardt smelter	3·26
Sangerhäuser smelter	3·43
Average	3·55 cwts.

Some of the furnaces run with open fronts; others, notably those using hot blast, with a closed front, tapping three or four times a day into cast-iron molds.

The slag, after passing through a cast-iron conical matte trap, runs into slag-cars, a counterpart of those commonly used at iron furnaces. Mansfeld shales are smelted alone or with a trifling admixture of siliceous ores (*Sand-Erze*). The cheap and rapid concentration of the ore into a rich matte is in a great measure due to the self-fluxing character of the ore. The resulting slag is stony and gray, and is employed on a large scale for the manufacture of paving-blocks and building-stone.

The yield of matte in 1885 was 7·1 per cent of the ore charged; that is, a concentration of 15 into one was effected in this one operation. The resulting matte analyzes about 45 per cent of copper, and is shipped by rail to the two large sulphuric acid works at the Eckardt and Kupferkammer smelters. At these two works, the matte, broken into small lumps, is roasted in kilns that have a capacity of from 1 to 1¼ tons a day. Six series of lead chambers, of an aggregate volume of 47,000 cubic yards, are in use, which produced during the year 18,510 tons of 50 per cent B. chamber acid. After the kiln-roasting of the mattes, they are smelted for white metal in reverberatories fitted with step-grates and Körting blowers. Siliceous ores and raw matte are added as needed. Four charges each of from 2¼ to 2½ tons are put through one furnace per day, and the yield of white metal reckoned on the total mattes charged averages about 40 per cent. The slags from this operation are returned to the blast-furnace smelting. During the fiscal year, 39,697 tons of matte were treated with 1142 tons of siliceous ore, consuming 18,110 tons of coal and producing 18,122 tons of white metal.

The average percentage of copper in the white metal was as follows for a series of years: 1880, 74·40; 1881, 74·36; 1882, 73·90; 1883, 74; 1884, 73·86.

During the last year, the white metal contained 145 ounces of silver per net ton. The white metal is cast in sand-beds and then broken by hand and crushed to a fine powder in roller mills. Each mill averaged 17·46 tons a day, in 1884. The finely powdered white metal is then roasted for sulphate of silver, and leached, as has been often described in metallurgical works. The remaining oxides of copper, amounting to 17,578 tons in the fiscal year ended in 1885, are smelted and refined in one operation in reverberatory furnaces.

The yield of fine copper in this operation was 67½ per cent of the weight of the leached residues, or a saving of 99·279 per cent of the copper contained in them. The latter percentage includes the inferior copper recovered from the reverberatory furnace slags and crasses.

The 12.719 tons of fine copper produced from Mansfeld shales still retained an average of 7·5 ounces of silver per ton, and the production of silver, 999 parts fine, amounted in round numbers to 85 net tons.

Of the enormous extent of the operations of the Mansfeld Company, the following statistics of the number of employés will give a fair conception. The total number of men of all kinds in the employ of the company was as follows in the last fiscal year:

Employés of mines	14,307
Smelters	1,914
Electrolytic establishment	10
Machine-shops	430
Copper rolling-mills	81
Coal mines and coke-works owned by company	1,229
Narrow-gauge railroad	113
Highways	38
Forestry department	141
Incidental works	61
General office	352
Total	18,656

These men supported the following families: Women, 9510; children, (under 14), 20,188; other relatives, 675; total, 30,373; or a grand total of 49,029 people depending entirely on the success of the Mansfeld corporation.

Turning now to the financial results of the company, the following are the salient points:

The company's capital is divided into 69,120 equal parts or shares. There are, in addition to the above, nearly $2,500,000 of liabilities in the shape of a bonded debt. During the fiscal year ended 1885, the price realized for the copper was about 13¼ cents a pound, and the principal receipts were as follows in round numbers:

For 12.719 tons fine copper	$4,300.000
170,000 pounds fine silver	2,780,000
Sulphuric acid	160.000
Incidental products	60,000
Total	$7,300,000

The company's expenses, in round numbers, were as follows:

Mining	$4,200,000
Smelting	1,500.000
Taxes	100.000
General expenses	200,000
Total	$6 000 000
Leaving a net profit of about	1,300,000

Out of this were paid dividends amounting to a little over $11 a share, during the fiscal year 1884 to 1885.

It will be seen that the principal income is from the copper; next stands silver. With Lake at 10 cents a pound, and the continued fall in the value of silver, the income of the Mansfeld Company for the fiscal year just ended (1885 to 1886) must have been a round million dollars less than the previous year, and the concern become practically unprofitable. Although some economies doubtless can be made, the pay of the labor

can not be materially reduced, and with an army of 20,000 employés, this is by far the largest item in the budget of the company.

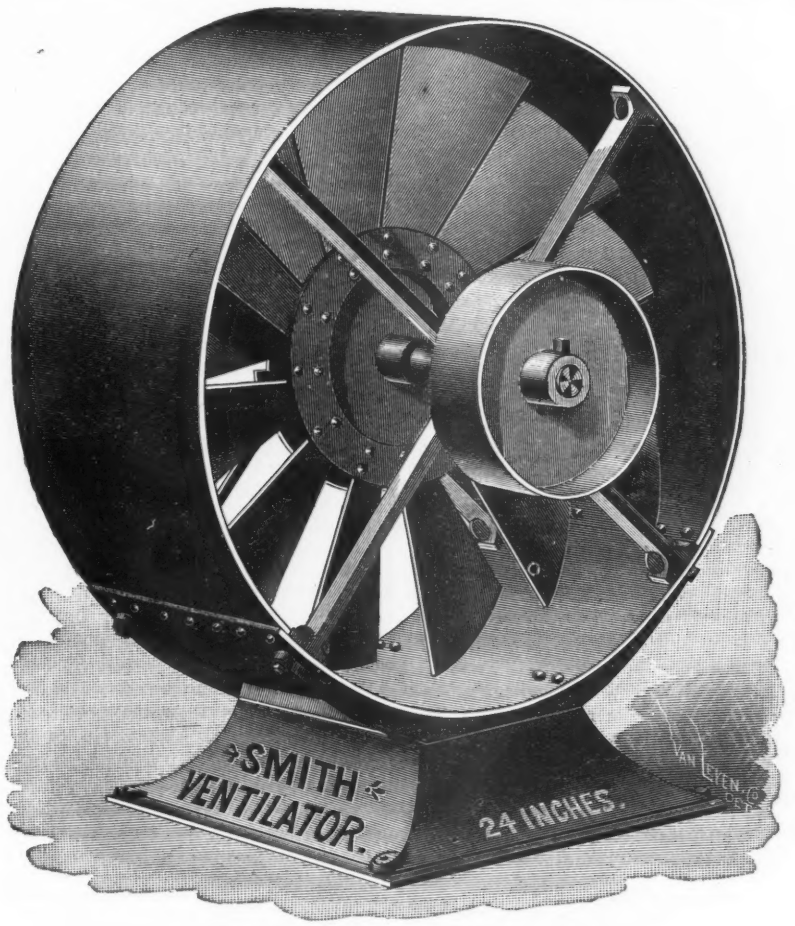
The shares of the Mansfeld Company sold in the latter part of 1884 at $140. Now they sell at $65, which is equivalent to a valuation of only four millions for the whole property.

During the fiscal year just ended, no dividends have been declared, as against $11 a share the previous year. The affairs of this great corporation again emphasize the fact that the bulk of the copper business of the world is done without adequate profit.

Like all anomalous conditions, this can not last for any length of time, and the reaction sure to come is likely to be as severe as the present era of depression.

THE SMITH VENTILATOR WHEEL.

This ventilator has been designed to overcome the great loss of effective duty heretofore common to all ventilators, arising from the stoppage of the air back through the center of the fan when any considerable resistance to the air-current has to be overcome. This loss increases in a direct ratio to the pressure against which the air has to be forced, and is due to the fact that the effective thrust of the screw-blade in a fan is in direct proportion to the decrease of the angle of the blade, provided a corresponding increase of velocity and area is maintained. In other words, the greatest efficiency of such a blade is attained nearest the circumference, reducing to almost nothing at the center of the wheel. In order to overcome this tendency to back-lash of the blast, the Smith wheel has a plate or diaphragm that stops off the center of the wheel, only utilizing such a proportion of the radius as is necessary to insure a steady blast without chance of back-lash when the desired resistance is being overcome. This center-plate also adds very materially to the strength of the wheel.



THE SMITH VENTILATOR WHEEL.

The Huyett & Smith Manufacturing Company, of Detroit, which is the manufacturer, claims that by this construction it attains a far greater efficiency than was heretofore possible with the old designs. Whereas the ordinary ventilators lose their economical efficiency when required to overcome a pressure exceeding one ounce, it is claimed for this wheel that a pressure of four ounces does not cause any appreciable loss in the volume of air discharged.

Every detail of construction has been carefully designed, so as to make the machines as compact and effective as possible, and to reduce the wear and tear to a minimum.

Reactions with Zinc-Dust.—Two simple methods for preparing pure hydrogen gas and carbonic oxide are described by G. H. Schwarz (*Ber.* 19, 1140). On heating a mixture of zinc-dust and calcium hydrate gradually in a combustion-tube, a constant current of pure hydrogen is liberated according to the equation $Zn+CaH_2O_2=ZnO+CaO+H_2$. On mixing the zinc-dust with calcium carbonate in molecular proportions, and heating as before, pure carbonic oxide gas is evolved thus: $Zn+CaCO_3=ZnO+CaO+CO$. In both cases, nearly theoretical quantities of gas are obtained. The author intends to apply this reaction to organic hydroxyl or carboxyl compounds.

THE AGOGEBIC IRON RANGE, MICHIGAN.*

By Prof. C. E. Wright.

(*Concluded from page* 114.)

ASHLAND IRON MINING COMPANY.

This company filed articles of association October 9th, 1884; capital stock, $1,000.000, divided into 40,000 shares of $25 each; cash paid in, $10,000. The officers of the company are: J. O. Hayes, President; E. A. Hayes, Secretary and Treasurer; Hugh Richard, Vice-President.

The property embraces the north half of the northwest quarter, section 27, and the south half of the southwest quarter, section 22, town 47, range 47, Mich. The first-described eighty is leased from the Canal Company, and the latter from the J. C. Ayer estate.

There are two working-shafts 245 feet apart. No. 1 is the westerly one and is south 70 degrees west of No. 2 shaft. It is 102 feet to the bottom of the "sump," and 87 feet to the first level. A cross-cut leads to the north 18 feet through soapstone, and meets a hard steely specular ore. This ore is exceedingly hard to drill, and therefore expensive to drift in. From where the cross-cut intersects the ore, are wide drifts or chambers leading to the east or west. To the east for 50 feet, the drift is 15 feet or more wide. It is in specular ore, with here and there bunches of reddish quartzite. The soapstone lies on the foot-wall or south side. At 50 feet east from the cross-cut, a decomposed felsitic vein of light pearly-gray to pinkish-white kaolinite obliquely crosses the opening on a northeast and southwest course. To the east of this fissure-vein, is a purplish-brown to bluish soft hematite ore. The chamber here widens to 38 feet, cutting away to the foot and hanging-wall sides of the soft ore-vein with no hanging-wall yet in sight.

The quartzite on the foot-wall side is in places more like a hard-pressed sand-bank, caused apparently by the decomposition of the matrix or cementing material of the quartzite. This is not to be wondered at, as the water, forcing its way downward, naturally follows the junction of the strata fissures and joints, dissolving a portion of the mineral ingredients of the rocks it traverses and again replacing it with others. It is highly probable that the purity of some of the soft hematites is due to this very process. Many of the soft ore-veins were originally, no doubt, very siliceous; but alkaline water filtering through them under pressure, especially if by any means they had become broken or shattered, would in time carry away the silica in solution and leave the iron oxide and other bases behind. The foot-wall, as noted above, drops away to the south about 15 feet; but at 50 feet to the east, it turns sharply to the north for 15 feet, and again takes its regular course to the easterly. No true hanging-wall was seen; but within 20 feet or more of No. 2 shaft, is a large mass of rock in the ore-vein. It is probably only a "horse," as the ore appears to be making around on the north side of it, and then about the same distance easterly from the shaft the ore is cutting it out

*We are indebted to the courtesy of Mr. C. D. Lawton, Mining Commissioner for Michigan, for the report of Prof. Charles E. Wright on the Gogebic iron mines, from which we make liberal extracts. The high authority of Professor Wright will add to the interest of the report of what is now a booming "camp," and about which some exaggerated accounts have been published.

to the north. They were "breast stoping" some 15 feet high by 35 feet wide, and were in 54 feet easterly from No. 2 shaft. The vein on this side of the shaft was 38 feet wide, with no hanging-wall in sight.

One interesting feature is the presence of occasional rounded boulders of quarztite in the ore. Whether these boulders will disappear in depth is a problem that may throw some light on the origin of these hematite veins.

SYSTEM OF MINING, TIMBERING, AND FILLING.

The Nevada system of timbering has been adopted here, but it will probably prove too expensive to be long continued at the present price of ore.

The plan now adopted by some of the older hematite mines of the Marquette and Menominee districts for supporting the walls of the underground workings is to sink the shafts a number of levels below where the ore is mined out, and then drive longitudinal drifts along the foot-wall to each side of the shafts, thereby drying the "ground" above that will enable it to stand better during the course of mining; then to begin and backstope the ore toward the shaft, the width and hight of the stopes depending on the character of the ore and the width of the vein; then to fill in dirt or other material to replace the ore. The cost of putting in loose material, such as sand or gravel, with proper appliances, where it is convenient to the mine, should not cost more than 30 cents a cubic yard. A cubic yard of hematite ore will weigh in the ledge about 2½ tons, or say 12½ cents per ton. Now, if 2½ cents be added for the sinking and maintenance of the dirt shafts, we have a total cost of 15 cents a ton of ore mined. By this method, all or nearly all of the ore is taken out, and there is no danger of caving in from defective timbering, and the mine is always practically safe. This system is no experiment, as it has been in operation for several years in Europe. An occasional stoll is needed to support temporarily any loose ground.

To the west of the cross-cut from No. 1 shaft, is a drift leading westerly, from 5 to 7 feet wide. The first few feet of it is in hard ore, but the most of it is driven in soapstone. At 70 feet from the shaft, is a cross-cut branching a little to the right for 35 feet. The branch follows a narrow lens of ore. From the branching-off point, another drift leads to the south, and at 18 feet intersects another lens of soft ore 18 feet across. The lens has been mined out for 50 feet along its length. It appears to have a pitch of about 25 degrees to the east. Its extension east would then pass somewhere beneath the shaft. Should the larger lens between the two shafts have a similar pitch, as is highly probable, No. 2 shaft will eventually become the main working-shaft. The ground in the heading of the drifts is quite wet, but it very soon drains out as the work advances.

The officers at the mine are: E. A. Hayes, Manager; J. A. Wetmore, Assistant Manager; J. H. Taylor, Mining Captain; Daniel Sullivan, Second Mining Captain.

The ore is a fine quality of Bessemer, and I understand has given excellent satisfaction.

About half a mile easterly from the Ashland is the

NORRIE MINE.

This mine is located in the south half of the southeast quarter of section 22, T. 47, R. 47, Mich. The first exploration for iron ore was made on this property by Capt. James A. Wood, for A. L. Norrie, about the middle of July, 1882. Mr. Norrie holds a lease of the same from the J. C. Ayer estate. Ore was found very soon after they began work, and within two months Captain Wood reported "a length of vein of first-class hematite ore of 660 feet and a width of 24 feet." An analysis of the ore taken at that time afforded: Metallic iron, 63·65; phosphorus, ·040; silica, 2·59. The exploratory work was continued until late in the fall of that year and resulted in showing an apparent length of 1200 feet and width varying from 6 to 60 feet.

Early in 1885, Mr. Norrie entered into an arrangement with the Metropolitan Iron and Land Company, whereby it mines the ore and gives Mr. Norrie a certain share of the net profits. The officers of this company are: S. S. Curry, President; H. S. Hazleton, Secretary; R. R. Hanna, Treasurer; J. D. Day, Superintendent; William Treblecock, Mining Captain.

The present mine consists of three shafts and an open trench. No. 1 shaft, the middle one of the three, is located in the centre of the property. It is sunk 90 feet; the first 25 feet is through surface, and the remaining 65 feet in ore. The shaft was sunk vertically for 60 feet to the foot-wall, and then to the bottom on the foot-wall. The foot-wall dips to the north about 50 degrees, and has a strike of north 70 degrees east. No. 2 shaft, the easterly one, is 190 feet from No. 1 and is sunk 120 feet. The first 90 feet of it is vertical, and from there down on the foot-wall. The underground workings of Nos. 1 and 2 shafts are connected, and may be briefly described as follows:

From the bottom of the middle shaft, is a large drift driven westerly along the foot wall for 210 feet to what is apparently the west end of the lens of ore, the ore in the west end of the lens becoming much harder; in fact much of it is quite steely and hard like that of the west end of the Ashland mine. To the east of the shaft, a large drift extends along the foot-wall to No. 2 shaft. At 25 feet east of No. 1 shaft, is a cross-cut, ten feet wide by eight or ten feet high, driven north 110 feet through soft hematite ore to the hanging-wall of lean ore and soapstone. At 55 feet east, is a 75-foot cross-cut to the north, all in ore; at 95 feet, is a 75-foot cross cut to the north; at 105 feet, is a 45-foot cross-cut to the north; at 135 feet, is a 35-foot cross-cut to the north. All of the cross-cuts are ten feet wide and ten feet high, and arching at the top. The object of opening the mine in this manner was to get ore for this season's [1885] shipments. To the west of the middle shaft, a similar plan was adopted. Twenty-five feet west of the shaft, is a cross-cut driven 78 feet north, with quartzite in the breast of the drift. This is probably a "horse of rock," as the 110-foot cross-cut, only 50 feet east of this point, met with nothing but first-class hematite ore; and again from the north end of the long cross cut, is a drift leading to the west that is nearly opposite and north of the 78-foot cross-cut. As at the Ashland mine, there are large rounded boulders of quartzite in the ore, and the quartzite next to the ore is frequently disintegrated into common sand.

The ore is apparently in a lens form, the horizontal section of which appears to be 400 feet long by 110 feet wide, north and south. The ore is a soft hematite, and works well and free in the furnace. It averages about 62 per cent in metallic iron and ·047 in phosphorus.

The plan of working the mine has not been fully determined upon, though the "filling-in plan" is seriously talked of. It is the present purpose to sink the shafts two or three levels, and open out below; then a system of taking out the ore can be more intelligently devised.

The west shaft is 350 feet westerly from the middle shaft. It is down 75 feet, the first 35 feet through surface, and the remaining 40 feet in ore. From the bottom of the shaft, is a cross-cut to the north of 68 feet in a steely hard ore; the breast of the drift is in a lean hydrated ore. West of the shaft, 30 feet, another cross-cut has been started north in ore. The longitudinal drift westward is driven along the foot-wall, and is now 90 feet from the shaft.

The local management of the mine can not be otherwise than first-class, as Superintendent Day and Captain Treblecock are both able and experienced mining men.

The total shipment of ore from the mine for the season of 1885 was 15,591 gross tons.

To the easterly, about half a mile, are the Aurora and Vaughn mines, which are now consolidated under the title of the

AURORA IRON MINING COMPANY.

The original lease of the Aurora embraced the east half of the southwest quarter of section 23, T. 47, R. 47, Mich.; but since the consolidation with the Vaughn, it includes the north half of the southeastern quarter of the above section.

The first-described eighty was known in 1883 as the J. H. James option. Early in 1883, the Vaughn Iron Company was organized on this eighty. Very little work had been done July, 1883, on the Aurora; but on the Vaughn, the following notes were taken by myself at that date: "No. 1 test-pit 325 feet south by southeast from the northwest corner of the eighty is 26 feet deep, 11 feet of which is surface and the remaining 15 feet ore; vein said to be 17 feet wide; ore, a soft hematite mixed with limonite and hard steely blue ore. One hundred feet east are four test-pits, 35 feet deep, in clean ore and mixed ore, but improving in depth. One hundred feet easterly again, is a test-pit down in good ore; others not down on account of water. Easterly again 150 feet, is a test-pit down 30 feet, 10 feet surface and 20 feet in good ore; struck a grayish-white foot-wall of quartzite in the bottom; drifted north 17 feet, all in clean ore. One hundred feet again easterly, is another test-pit down to the ore. The trend of the ore-vein is north 70 degrees east."

It will be seen that, even at that early stage of development, there was a fair prospect for iron ore on this property.

Early in 1885, a syndicate of capitalists became interested in the above properties, with a general office at Milwaukee, and has worked them vigorously ever since.

No. 1 shaft of the Aurora mine is located about 800 feet east from the west line of the property. It is 65 feet deep on the foot-wall. At 60 feet, is a cross-cut north of 85 feet; also, drifts to the east and west, along the foot-wall, of 65 feet, all in ore. In the west drift, 40 feet from the shaft, they were cross-cutting north; were in 30 feet, all ore. The cross-cuts and drifts are all ten feet wide and high. This was done to get out that fall a few test cargoes of the ore. A No. 7 Knowles pump takes care of the water easily.

No. 2 shaft is north 70 east, 150 feet from No. 1 shaft. It is sunk through surface and ore 30 feet to the foot-wall, and then for 10 feet more in ore along the foot-wall, and still going down.

About 500 feet easterly from No. 2 shaft is No. 3 shaft. It is on the Vaughn eighty, and was down 28 feet with ore in the southeast corner. On the same course as above, and 300 feet easterly from No. 3, is No. 4 shaft. This shaft is sunk 64 feet, with drifts east and west, each 20 feet.

The strike of the formation, as will be conjectured from the trend of the ore-vein, is north 70 degrees east, and the dip about 60 degrees to the northerly.

Nos. 1 and 2 shafts are located on the north side of a branch track that leads out of Ironwood past the Norrie mine, and Nos. 2 and 3 shafts are on the south side of the track.

The ore, a soft hematite, analyzes high in metallic iron and low in phosphorus. The sinking of the shafts and driving of the drifts; getting out two or three test cargoes of the ore; erecting several buildings for the accommodation of the miners, and many other improvements have all been accomplished since the middle of July of 1885, a little more than three months; surely a good record and one that the management can refer to with pardonable pride.

The consolidation of the properties gives a length of vein of about 3000 feet, with good workable mines to each side.

There were employed on the location, all told, about 50 men, and they were shipping a hundred tons a day; many of the men, however, were employed at "dead-work."

The officers of the company are as follows: N. D. Moore, President; M. J. Luther, Vice-President; John E. Burton, Secretary; Alvin E. Tyler, Treasurer; George Brewer, Superintendent.

Adjoining the Vaughn mine to the east is the property of the

PABST IRON MINING COMPANY.

This mine was known as the Albany mine until early in 1885, when the present owners came into possession, and named it the Pabst mine.

The property embraces the south half of the northeast quarter of section 23, T. 47, R. 47, Mich.

The workings consists of three shafts. No. 1 shaft, the middle one, is located 430 feet west of the east line of the section and 100 feet north of the south boundary of the property. It is sunk in the foot-wall on an angle of 70 degrees to the north for 35 feet, and then 35 feet more at 60 degrees to the bottom of the shaft. At 65 feet down, is a large cross-cut driven 68 feet to the north. The first 12 feet was in the foot-wall and the remaining distance all in ore.

A short distance to the northwest, is No. 3 shaft, located in the hanging-wall. It is sunk through 27 feet of sand and 10 feet in the hanging-wall of quartzite and mixed ore.

No. 2 shaft is located about 150 feet northeasterly from No. 1 shaft. It is down 23 feet in the foot-wall. They will sink it deeper and then cross-cut north.

The vein has been tested northeasterly from No. 1 shaft for 525 feet to the east line of the section.

This winter [1885–86], it is purposed to sink No. 1 shaft to a depth of 150 feet and then drive drifts along the foot-wall to each side of the shaft; also to cross-cut the vein at different points.

The ore averages well in metallic iron, some of the car-loads of the ore weighing 22 gross tons each.

The mine has a plant of machinery that will meet all requirements for the coming season [1886], especially the boiler portion of it—a desideratum of great advantage in the opening of a new mine.

Quite a change has been wrought in the appearance of this location within the past three months. A little berg has sprung here in the wilderness, and presents a cosy, comfortable outlook.

Capt. George Berringer, one of the pioneers from among the mining men of the Marquette Mining District, is the superintendent and part owner of the mining lease. He is ably seconded by Richard James, the mining captain.

The mine has shipped a test cargo of 1224 gross tons. The officers of the company are as follows: Philip Best, President; Charles Best, Secretary and Treasurer; George Berringer, Superintendent.

GERMANIA IRON MINING COMPANY.

Westward, just across the Montreal River into the State of Wisconsin, and therefore, not properly within the limits of this report, is the Germania mine, operated by the same parties as the Ashland mine.

This company was organized in 1884; capital stock $1,000,000, divided into 40,000 shares, $25 each. It embraces the south half of the southwest quarter of section 24, T. 46, R. 2 E., Wis., and is leased from the Northern Chief Iron Mining Company.

The mine consists of three working-shafts, Nos. 1, 2, and 3. No. 3 shaft is located near the center of the "eighty." It is down 65 feet, and was just into the ore. No. 2 shaft is about 300 feet westerly from No. 3 shaft.

The first ore mined from this property was taken out of an open pit from the bottom of which the shaft is sunk. In July 1885, they had reached in this open pit, at 25 feet down, what appeared to be the lower side of the lens of ore; that is, the foot and hanging-walls were in contact. This was caused by what seems to be a longitudinal fault or slip. The formation dips to the north and the plane of the fault apparently to the south; while the direction of the throw or slip is, that the north portion or side of it moved downward.

At the bottom of No. 2 shaft, is a cross-cut to the north. The first few feet of the drift was through quartzite, then come 22 feet of hematite ore; the hanging-wall is a lean limonitic ore. Along the foot-wall side of the vein, a drift was driven east 85 feet and west 40 feet, all in ore of a superior quality of soft and hard hematites. As no cross-cuts have been driven to either side of the shaft, it is impossible to give the thickness of the vein. No. 1 shaft, 295 feet westerly from No. 2 shaft, is sunk 50 feet to the ore. From the bottom of the shaft, is a cross-cut 13 feet in ore, but the water coming in too freely, compelled them to stop work for the time being. The coming winter, they will sink all of the shafts two or three levels, and, if the ore proves continuous, will connect them by drifts.

They purpose also to continue exploring on the north vein of the property. They have already tested the north vein from 600 to 700 feet in length, and at one point have an apparent thickness of 70 feet of a hard steely hematite that is very rich in metallic iron and low in phosphorus.

The officers of the company are: E. A. Hayes, President and Manager; Hugh Richard, Vice-President; Louis Cheynoweth, Secretary; J. O. Hayes, Treasurer; J. A. Wetmore, Assistant Manager; and J. H. Taylor, Captain.

To the west of the Germania, are several very promising explorations, some of which will probably be shipping ore early next season [1886]. In regular order, westward from the Germania, and in town 46, range 2 east, Wisconsin, are the Nimekon, of the north half of the northeast section 26; the Kaukagon, east half of the northwest quarter of section 26; the Wood, the west half of the northwest of section 26; the Superior, the southeast quarter of the northeast quarter and the northeast quarter of the southeast quarter of section 27; the Kennan, the northwest quarter of the southeast quarter of section 27; the Ryan, the northeast quarter of section 33; the Section 33 Company, the east half of the northwest quarter of section 33; and the Montreal, the southwest quarter of the northwest quarter of section 33.

[We have given Professor Wright's descriptions nearly in full, partly as an instructive description of a new mining district by an experienced observer, and partly to put on record the early history of what promises to become a very important mining field.—EDITOR ENGINEERING AND MINING JOURNAL.

Damming Back the Flow of Water in Shafts and Tunnels.—Mr. L. Tietjens, of Stassfurt, Germany, has recently patented a very ingenious method of damming back the flow of water in shafts by the application of the well-known fact that certain salts increase their volume very materially by the absorbing of water of crystallization in hardening. To accomplish this, he takes either calcined soda, anhydrous alum, kieserite, or oxychloride of magnesium, mixes them into a paste, and then immediately injects them through a suitably arranged pipe into the fissures through which the water flows. As this paste hardens, it swells enough to fill all the interstices of the rock and to render it thoroughly water-tight.

Increase of the Temperature in the Earth toward the Center.—A remarkable example has been presented at Pesth, where the deepest artesian well in the world is that now boring for the purpose of supplying the public baths and other establishments with hot water. A depth of 3120 feet has already been reached, and it furnishes 176,000 gallons daily, at a temperature of 70 degrees Cent.—158 degrees Fahr. The municipality has recently voted a large subvention, in order that the boring may be continued to a greater depth, not only to obtain a larger volume of water, but at a temperature of 80 degrees Cent.—176 degrees Fahr. It is suggested that it is thus within the bounds of probability that the time may come when a brewer will obtain his water supply from a well of sufficient depth to yield "liquor" at the mashing temperature.

MINING IN BRAZIL—GOLD PRODUCTION, ETC.

The following notes are taken from a report published recently by the Minister of Agriculture of the empire of Brazil:

Gold.—Reports have been handed in from only five provinces. In Minas Geraes, gold mining is continued with greater or less profit. There are no statistics of the total production, but those of exportation are as follows:

Fiscal year.	Grams.	Value in milreis.*
1882–83	1,121,854	1,142,264
1883–84	1,166,855	1,195,902
1884–85	1,354,794	1,387,552

It is supposed that the gold production of the empire is much larger than these figures indicate, and therefore, that considerable gold is smuggled, in order to avoid the export duty.

Iron.—The minister thinks the mining of iron and coal in the empire of more importance than that of gold. The province of Minas Geraes has already more iron than gold mines in operation.

In the province of São Paulo, the Ypanema iron mines are the only ones operated. These mines, however, belong to the imperial government.

Coal.—A Brazilian company is mining coal at Arroio dos Ratos, in the province of Rio Grande do Sul. This company is said to turn out about 2000 tons a month, all of which is used for local consumption. At Tubarão, in the province of Santa Catharina, an English company is also mining. Some of its coal has been shipped to the River Plate, but the results of the shipment are not known as yet. The quality of the coal in this province appears to improve as the mines go deeper.

Oil.—At Taubaté, in the province of São Paulo, a company is working to advantage the oil-producing shales.

In the province of Bahia, the *turfa* deposits have been worked for oil, and have yielded during the year about 666 liters. Distilling machinery has been ordered from England, and the yield of this oil will in all probability be greatly increased in the near future.

Phosphate of Lime.—The imperial government has asked for and received tenders for the working of the phosphate deposits on the islands of Fernando de Noronha, a small group about 200 miles off Cape St. Roque. Two concessions have already been granted for the working of deposits upon other islands along the coast. B.

Chilian Manganese.—The province of Coquimbo, Chili, has become remarkable for the production and exportation of manganese. In 1885, the exportation reached 3753 tons, and during the first half of 1886 it was 38,802 tons. Nearly the whole of this was shipped to England.

Water Heating by Flame Contact.—Mr. Thomas Fletcher, of Warrington, has, in a paper to the Gas Institute, read on June 9th, brought forward some interesting experiments to show that the present system of water heating by gaseous or other fuel is essentially faulty in theory and practice. One of his experiments consisted in boiling a given quantity of water in a flat-bottomed copper kettle over a burner, and then boiling a similar quantity of water over the same burner in a little over half the time with a similar kettle, having, however, only half the extent of surface to give up its heat to the water. The improved kettle or boiler has a number of solid rods depending from its lower surface; each rod passing through the water space and being flattened into a broad head that gives up its heat rapidly to the water. These rods become heated, and attain, not being in direct contact with the water, a temperature that admits of flame contact being effective; whereas the flat-bottomed kettle does not, in Mr. Fletcher's opinion. Such rods, however, would not serve for steam-boilers, as they would be a source of weakness; but Mr. Fletcher finds that angle ribs or webs rolled in the boiler plates will do instead. As far as his experiments have led him, longitudinal webs in the line of the frames are more effective than circular webs. The experimental boilers he employed were of the Cornish and Lancashire type. The cracking of such boilers is due to the expansion and contraction of the plate in contact with the fire, and if the plates were covered with webs, the whole of their surface would, Mr. Fletcher thinks, be kept at a higher and more uniform temperature, and the tendency to crack at the rivet-holes probably reduced. For boilers in confined spaces, such as marine boilers, any improvement in their heating power is especially valuable, and Mr. Fletcher's innovations will be watched with interest.

The Growth of the Russian Manganese Ore Trade.—An official report just issued shows that the development of the manganese ore-deposits in the Caucasus continues apace. In January this year, the Transcaucasian Railroad conveyed to the coast, for shipment from Poti or Batoum, about 1500 tons. This increased to 2400 tons in February, 2300 tons in March, and 2800 tons in April. Last year, the exports for the first four months were: January, 500 tons; February, 1600 tons; March, 1100 tons; and April, about 1200 tons. In this manner, the export is nearly 9000 tons (547,493 poods) the first four months this year, compared with 4500 tons (272,400 poods) during the corresponding period of 1885. Excluding petroleum at Baku, no industry in Russia has made such rapid progress as the manganese ore trade. In 1880, the export was only about 4000 tons; the next year, it was a little less; but it doubled in 1882; doubled again in 1883; rose to 21,000 tons in 1884; and then jumped to 45,000 tons (2,756,415 poods) last year. If this increase be maintained—and the exports of the first four months justify the belief that it will—the export of manganese ore from Transcaucasia will amount to 90,000 or 100,000 tons in 1886. Nearly the whole of the ore is shipped from Poti, thus avoiding any interference with the petroleum trade of the neighboring port of Batoum. At present, only the large lumps of ore are sent away, as the wretched vehicles used in conveying it from the mines of Tchiatoor to the Transcaucasian Railroad can not carry little pieces. As a result of this, two thirds of the ore extracted are thrown aside, although quite equal to, and in some cases better than, the larger lumps sent to Europe. If, in spite of such a waste of labor, the ore can be sold so cheaply in Europe, the presumption is, says *Engineering*, that, once the Russian government carries out the projected line from the mines to the railroad, there will be a heavy fall in the price of manganese ore in this and other countries.

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* One milreis, at the prevailing rate of exchange, is worth 42 cents.

PRESSURE EXERTED BY WATER IN THE SOIL.

The following is an abstract of a paper in the *Zeitschrift für Bauwesen*, by L. Brennecke :

The author gives the results of a number of experiments, which were undertaken principally with the view of determining the influence exerted by capillary attraction in diminishing the pressure of water in various kinds of earth, especially sand of different size and grain, and of clay, it being assumed that the water can only find its way by suffusion through the mass, and that there are no large fissures present. Reference is made to various authors as regards their opinion on this subject, and the amount of deduction under circumstances may be made from the theoretical pressure of ground-water in designing lock-floors, etc.

An observation—recorded by Beer—in regard to a filter-basin at Magdeburg, 1880, is quoted, bearing upon the amount of frictional resistance to water-pressure offered by the ground, even where, as in this instance, of coarse gravel. The basin in question, 178 feet in breadth, had been constructed with a concrete floor of 1 foot 7½ inches in thickness, and was kept filled with water to counterbalance the pressure of the external ground-water. On the occasion mentioned, the water was pumped out to a level of 2 inches above the floor, when, a slight upheaval of a portion of the latter being noticeable, the basin was quickly refilled. The level of the external ground-water was 7 feet 10½ inches above the under side of the concrete floor, and the weight of the floor was equal to a column of water 3 feet 9 inches high; therefore, supposing the full pressure due to the hight of the ground-water had been active, it would consequently have required a depth of water in the basin of 4 feet 10½ inches, instead of 2 inches, to preserve stability.

Other examples of the varying resistances of different earths to water-pressure are mentioned, namely, at the coal mine, Wormrevier, some years since, when carrying out some shaft repairs with the aid of pneumatic pressure, on reaching a depth of 48 feet below the surface of the ground-water in a saturated clay-sand, an air-pressure of ⅘ atmosphere, instead of twice that amount, was sufficient to exclude the water; and at the Rheinpreussen mine near Homberg, in 1865, the caisson was sunk with a pressure of only 2½ atmospheres to such a depth as was calculated to require a pressure of 8 atmospheres. In the latter instance, however, a sudden increase of the water-pressure led to a most disastrous accident by bursting the air-lock. It is suggested that the water was held back for some time by the thick beds of clay that it was known had been passed through, but finally found its way through these by channels around the outer skin of the caisson. In the previous case quoted, the author is of opinion that, as only half the calculated air-pressure was requisite, probably half the column of ground-water was supported by the air-pressure, and the remainder by capillary attraction. Details are given of the laboratory experiments upon sands of various sized grain, together with a number of formulas and tables, giving the corresponding hight of the capillary column.

The Paris Exhibition.—The inaugural ceremonies for the building of the Paris Exhibition of 1889 are announced to take place on the first of September next. The Minister of Commerce has appointed M. Alphand general director of the works, M. Beyer director of construction, and M. Grison chief clerk.

Bones in Stones.—While workmen were engaged in blasting rock at the limestone quarry at McAffee, in Orange County, New York, last week, a seam in the rocks was opened, in which was found a number of bones, among others some that are alleged to be those of a man. There are pieces of the vertebræ of an ox, and a piece from some huge beast's jaw containing a tusk.

The Dantzic Amber Industry.—Dantzic is the great center for the amber trade and industry. Last year, raw amber came there to the amount of 239,000 pounds, as against 115,871 pounds in the previous year. The total value of amber imported last year is estimated at from $230,000 to $276,000, as against from $103,000 to $115,000 the year previous.

Making or Repairing Furnace Fettling—Friedrich Siemens, of Dresden, has patented a new process for fettling and relining furnaces, which promises great economy of time and material. He crushes the quartz or other fettling material coarsely to about 16 mesh, and then by use of the sand-blast he projects it into the heated furnace against the parts to be covered. The particles immediately become plastic, and adhere, forming a perfectly even covering.

New Method for the Reduction of Antimony.—A new method has been introduced in England by N. J. Cookson. In a tank lined with fire-brick, he places the antimony ores, or crude antimony, and then molten iron is poured in. This decomposes the sulphide, by the formation of ferric sulphide, which floats on top, and can be skimmed off. Instead of metallic iron, molten pyrites may be used, provided the percentage of iron in them is larger than in pure monosulphide.

Swedish Tunnel.—M. A. de Rothe, an engineer, in the name of a French company, has just presented to the Swedish and Danish governments a plan for cutting a tunnel between Copenhagen and Malmö, in Sweden. The tunnel would be 7½ miles long, in two parts, of which two miles would lie between the islands of Amak and Sattholm, and 5½ miles between the latter island and the Swedish coast. M. de Rothe has been for several years employed as an engineer on the Panama Canal works.

Australian Kerosene Shale.—In New South Wales, a variety of cannel coal, commonly called "kerosene shale," similar to the once famous Boghead mineral of Scotland, but yielding a much larger percentage of volatile hydrocarbons than the Scotch Boghead, occurs in saucer-shaped deposits from a few inches to 5 feet thick. The richest quality yields upward of 150 gallons of crude oil per ton, or 18,000 cubic feet of gas, with an illuminating power of from 38 to 48 sperm candles; and on this account it is found advantageous for mixing with ordinary coal in the manufacture of gas, and is largely exported to Great Britain, America, and other foreign countries, as well as the neighboring colonies, for gas purposes. Two companies manufacture from it petroleum oil and other products. The quantity raised in 1885 was 31,618 tons, valued at £72,176.

Miner's Safety-Lamp.—At the last meeting of the South Wales Institute of Mining Engineers, Mr. Walker introduced a model of the Regent electric miner's portable safety-lamp. This apparatus consists of a case containing four cells of the Regent battery, to which is attached a three candle-power incandescent lamp and a switch for turning the lamp in or out. The battery will contain sufficient electrical energy to run the lamp at full power for ten hours, and still leave sufficient light for the miner to find his way about for another two hours. It will weigh 3 pounds in all when complete, and the only attention required will be to empty the liquid out, and pour in fresh each day and each week to replace the zinc plates. These operations take far less time, and are more easily performed, than the work of cleaning the oil lamps at present in use. The advantages claimed are: Much more light than given by the miner's lamps now in use; absolute safety; superiority to other forms of lighting by electricity: small weight for the light given for the time; and portability. The idea was considered by the members to be an excellent one; but Mr. Walker explained that the model he had prepared was in a crude state, and was considerably heavier than it would be when he had further time to perfect it.

Curious Effect of an Electrical Current on Anhydrous Hydrofluoric Acid.—Mr. H. Moissan experimented by passing the current from a battery of 50 Bunsen cells through a platinum U pipe filled with anhydrous hydrofluoric acid, at 50 degrees C Hydrogen appeared immediately at the negative pole, while from the positive pole was discharged a constant flow of a gas that had the following properties: Quicksilver placed in the stream was entirely absorbed by the gas, being reduced to a bright yellow fluoride of mercury. Water was decomposed with the production of ozone. Sulphur, exposed to the gas, heated and was melted immediately. Carbon remained inert and without any effect. Chloride of lime was decomposed, and free chlorine disengaged. Pure crystalline silica, which had previously been washed in nitric acid, took fire at once in the gas, and burnt brightly to a fluor-silicium. The positive electrode, which was of platinum containing iridium, showed considerable corrosion; whereas the negative pole, which was also a platinum electrode, remained unaltered. Mr. Moissan is now carrying on investigations to determine the exact nature of this gas.

Successful Casting of Iron or Steel upon Brass.—One of the latest inventions or discoveries in metallurgy is the casting of iron or steel on brass. It is a thing that it has often been sought to accomplish, but until recently without success. Experiments were made lately in Boston. The brass core, or whatever it may be, is first cast in the usual way, and is then molded in conjunction with the pattern, and when the latter is removed, it is allowed to remain in the flask, and the melted iron poured over it. This iron is prepared by a flux for ready amalgamation with the brass, and when the compound casting is taken from the sand, it is found to be a complete and well-connected piece. The union of the two metals is perfect, and they can be separated by melting the brass, which runs at lower temperature than iron from its backing. For bearings for car-axles and other things that now require solid and thick brass castings, costing quite heavily by the pound, the compound bearings, being more than three quarters cheap iron, would form a cheap and efficient substitute. For pumps, steam and fire-engines, and many other machines and mechanical appliances, including bearings of shafting, the new compound metal will constitute a most efficient substitute for brass castings, and, what is more, an economical one. It might even be applied to ordnance of all descriptions, being used for the center or core of the cannon, and be strengthened by steel or tough iron cast on the outside. The invention seems to be a most promising and important one, and, when fully known, and if it bears out its promise, it can not fail to come into use in nearly all lines of mechanical industry doing metal work.

PATENTS GRANTED BY THE UNITED STATES PATENT-OFFICE.

GRANTED AUGUST 3D, 1886.

346,615. Machine for Making Spirally-Jointed Metal Pipes. John B. Root, Port Chester, New York.
346,729, 346,730, 346,731, 346,732, 346,733. Artificial Stone. Henry A. Daniels, Yonkers, New York.
346,736. Manufacture of Artificial Stone. Henry A. Daniels, Yonkers, New York.
346,765. Compound for Increasing Combustion of Coal, etc. James S. McIntyre, Clarinda, Iowa.
346,767. Non-Conducting Covering for Cylinders of Ice-Machines, Pipes, etc. John M. Ordway and George F. Ordway, Boston, Mass.
346,781. Gas-Producer. Martin V. Smith, Tyrone, Pa.
346,782. Brick for Gas-Regenerating Furnaces. William H. Smith, Canton, Ohio.
346,826. Rail-Joint. Francis J. Powers, Cresson, Pa.
346,828. Welding-Machine. John B. Root, Port Chester, New York.
346,834. Miner's Squib-Box, etc. Jehu D. Williams, Denton, Ky.
346,835. Lime Kiln. Edwin V. Wingard, Philadelphia, Pa.
346,850. Apparatus for Hoisting Stone. Griffith Hunter, Chicago, Ill., Assignor to to S. A. Hunter, same place.

GRANTED AUGUST 10TH, 1886.

346,884. Machine for Straightening Bar-Iron. Richard T. Barton, New Haven, Assignor to Andrew H. Smith, New Haven, and George H. Allen, Hamden, Conn.
346,940. Apparatus for Carbureting Gas. Warner F. H. O'Keefe, Alleghany, Pa.
346,943. Machine for Rounding and Polishing Metal Rods. James M Perry, Sharon, and Alexander Gordon, Pittsburg, Pa.
346,973. Apparatus for Manufacturing Lamp-Black. John Wilson, New York City.
347,004. Apparatus for Compressing Fluid Metal. Edward B. Meatyard, Lake Geneva, Wis.
347,005. Machine for Rolling I-Beams. Edward B. Meatyard, Lake Geneva, Wis.
347,060. Cold-Packed Pipe-Joint and Method of Producing the same. Andrew N. Rankin, Jamaica, New York.
347,078. Compound for Perfecting the Combustion of Coal or other Fuel. George White, New York City, Assignor to the H. N. Burdick Manufacturing Company, same place.
347,084. Casing for Natural-Gas Conduits. James Blackmore and Thomas D. Steen, Putnam, Pa.
347,098. Clod Crusher and Pulverizer. Francis Evison, Morenci, Mich.
347,135. Operating Mine-Doors. Peter F. Snyder, McKeesport, Pa.
347,137. Gas-Engine Pump. Fenner B. Taylor, Washington, D. C.
347,145. Boiler-Flue Cleaner. J. H. Weitmyer, Harrisburg, Pa.
347,151. Dumping Device for Mining-Cars. William J. Renniman, Avoca, Pa.
347,197. Adjustable Packing for Piston-Rods. William Pohlman, Middletown, New York.
347,277. Device for Connecting Pipe to Bore-Holes for Artesian Wells. Parker Price and John Leib, Sandy Run, Pa.
347,283. Rolls for Rolling Girder Rails. Timothy L. Beaman, Knoxville, Tenn.
347,288. Purifying Paraffine and Extracting Oil from Oleaginous Materials. Francis X. Byerley, Cleveland, Ohio, Assignor of one half to Charles M. Mix, same place.

PERSONALS.

The well-known engineer, Ellis Sylvester Chesbrough, died at his home in Chicago, on the 18th inst., at the age of seventy-three.

Mr. Charles B. Froment, No. 115 Dearborn street, Chicago, has been appointed sole Western agent for the Pottsville Iron and Steel Company, Pa.

The late Prof. William Ripley Nichols bequeathed to the Massachusetts Institute of Technology, Boston, Mass., all his scientific apparatus and all his scientific books and pamphlets.

The American Society of Mechanical Engineers has decided to hold its seventh annual meeting in New York City, the week immediately following Thanksgiving week.

J. P. Witherow, of Pittsburg, will shortly open a Southern office at Birmingham, Ala., of which Minor Scovel, a young engineer who has been with him for several years, will have charge.

Mr. Carl Henrich, who has been the General Manager of the Champion Copper Mining Company of New Zealand, Limited, at Nelson, New Zealand, for some time past, will return to this country by way of Europe. He expects to reach this city about October 1st.

Mr. Andrew Lyons, of Pittsburg, Pa., died in that city last week. He was one of the pioneer oil refiners of Pennsylvania, and was among the first to embark in the business of refining petroleum oil. He made a close study of this subject, and was considered one of the most expert of refiners.

Our old friend, J. F. Blandy, for so many years connected with Arizona mining interests, is at present engaged in solving the difficult problem offered by the refractory nature of the Colusa Company, California, gold ores. If perseverance and grit go for any thing, we shall expect soon to hear favorably from that quarter.

Mr. F. Stileman, Chief-Engineer of the Barrow-in-Furness (England), Railroad and Harbor Improvements, has come to this country to study up our systems of grain elevators and our methods of handling the large shipments of Lake Superior iron ores, at our Lake ports, with the view of introducing the systems at Barrow.

Our Managing Editor, Mr. R. P. Rothwell, is at present in Alabama, visiting the coal mines and iron works, in order that the ENGINEERING AND MINING JOURNAL may be better able to do full justice to Alabama's great resources and wonderful progress in the development of these great industries. Mr. Rothwell may be addressed at Birmingham, Ala., by wire or letter until the end of the month.

Mr. H. Y. Castner, of this city, is now in London, on business connected with his sodium patents, which have attracted considerable attention, and for which people in England have made him most flattering offers. A large furnace is constructing in London to thoroughly demonstrate the economy of his process. It certainly does look now as though, what with the Cowles furnace on one hand and this cheap sodium process on the other, aluminium at least is destined to become one of our cheapest metals.

Eli Whitney Blake died at his home, New Haven, Conn., on the 18th inst., at the age of ninety-one years. He was born at Westboro', Mass , in 1795. In 1852, while superintending repairs to the streets in Westville, he recognized the necessity of a stone-breaking machine, and five years later patented the Blake Crusher as a result of his labor. This machine worked a complete revolution in mining business. Mr. Blake's abilities and acquirements in the fields of mathematical and physical science were of a high order, and he contributed many valuable papers to scientific journals. Several of the most important of these, which had been originally published in the *American Journal of Science*, together with some additions of a later date, were collected by him in 1881 and printed together in a small volume entitled *Original Solutions of Several Problems in Aërodynamics.* The originality and value of Mr. Blake's investigations and also his ability and general merit as a physicist were recognized by scientific authorities at home and abroad, and drew from his alma mater, Yale, in 1879, the honorary degree of LL.D. He was one of the founders, and for several years the president, of the Connecticut Academy of Science.

FURNACE, MILL, AND FACTORY.

A charter has been granted to the Lucinda Furnace Company, of Philadelphia, Pa. Capital stock, $50,000

Natural gas has been introduced into the Soho furnace, Pittsburg, Pa.

The Iron River Furnace (charcoal) at Fond du Lac, Wis., has been leased by Charles Himrod, of Chicago.

The rolling-mill at Fishback, Pa., has resumed work on double-time, after a two months' strike by the puddlers.

The Williamson and Etna furnaces, at Chattanooga, Tenn., are nearing completion, and will be ready to blow in near the close of the year.

The pig bar mill of the Cleveland Rolling-Mill Company's works at Cleveland, Ohio, has been changed to a rail mill, and is now making 52-pound steel T-rails.

The Excelsior Steel Furnace Company has been incorporated at Chicago with a capital stock of $2500 ; incorporators, Arthur W. Glessner, Herr L. Thornburg, and John E. Cailey.

The Knoxville Iron Company, Knoxville, Tenn., has decided on the introduction of steel manufacture, and a committee has been appointed to procure plans and specifications for a Bessemer plant.

The Wheeling Steel-Works, at Benwood, West Va., made its first cast of steel last week, and is working in a satisfactory manner. The plant has a capacity of 300 tons of mild steel every twenty-four hours.

The new steel plant erecting by Jones & Laughlins, proprietors of the American Iron-Works, at Pittsburg, is ready to begin operations. The plant is an extensive one, some $300,000 having been expended in its construction.

The tunnel-head of the large furnace of Meily Brothers, at Lebanon, Pa., burst out on the morning of the 19th inst., with a loud explosion. Several employés had narrow escapes. The casting-house was burned, and other damage done to the extent of $10,000.

A proposition has been made to the Craig Company, New Castle, Va., by capitalists for the joint construction of a charcoal furnace by said capitalists and the Craig Company, and the proposition has been conditionally accepted, with a prospect of a definite contract being entered into.

Messrs. Gordon, Strobel & Laureau, of Philadelphia, have closed a contract with the Old Dominion Iron and Nail-Works, of Richmond, Va., for a three-ton Bessemer plant with soaking-pits, heating-furnaces, gas-producers, and boilers. The converters are to be low blast, side-blown bottoms of the latest patterns. The company will use the steel in making nails.

Messrs. B. Cornell and Mason Evans have been removed from the receivership of the Himrod Furnace Company, Youngstown, Ohio, on the ground claimed by the creditors that they are interested parties. The court has asked the counsel to agree upon a successor, stipulating that he must be a disinterested party. It is said that the appointment will be tendered to John J. Williams, superintendent of Brown, Bonnell & Co.

A mortgage for twenty-five thousand dollars against the Pennsylvania Tack-Works, Norristown, Pa., held by Francis H. Keith, was foreclosed on the 19th inst. in default of payment of interest. The mortgage covers the building and machinery. Since the recent sheriff's sale of the personal effects of the Association, to satisfy the claims of creditors to whom judgments had been confessed, the works have been managed by a trustee.

The Linn Iron-Works, of Birmingham, Ala., are doing a large business. An engine recently built by them and erected at Oxmore as an auxiliary blowing-engine for one of the Eureka Company's furnaces, has been tested with gratifying results. The Linn Works have under way for the Pratt Coal and Iron Company's projected plant three others of the same size, 38 by 48 by 84, and same style.

The Roan Iron Company, Chattanooga, Tenn., is making rapid progress in transforming its mill that was built for the manufacture of iron rails to one for the manufacture of Bessemer steel, and the steel into rails. Operations, it is thought, will begin by the first of the coming year. In the mean time, the mining of the ore at Cranberry is progressing rapidly, and it is the intention to put immediately one or two of the stacks to smelting it, so as to have an abundance of the metal on hand when the company is ready to begin operations.

The machine-shop and one of the hammer departments at the Black Diamond Steel-Works of Park Brothers & Co., Pittsburg, Pa., were destroyed by fire on the afternoon of the 15th inst. The building was located in the center of the immense works, and for a time the fire threatened the entire plant. The structure contained valuable machinery, which was, course, entirely ruined. The loss will be from $75,000 to $100,000, and is fully insured. The fire will not interfere with the filling of orders by the firm, as they carry a full stock of manufactured goods. Work continues as usual in all other departments.

The M. C. Bullock Manufacturing Company, of Chicago, Ill., reports the following shipments of its machinery : To the Menominee Mining Company, Iron Mountain Mich., one No. 16 portable Lane hoist, with two 10 by 15 engines and drum 54-inch diameter by 48-inch face ; to the Chateaugay Ore and Iron Company, Plattsburg, New York, one Challenge Diamond prospecting-drill for deep hole boring, with complete outfit ; one David Boyle patent 25 ton ice-machine for Chicago parties ; to the Lake Superior Iron Company, Ishpeming, Mich., one wrought-iron mining cage ; and to the Union Steel Company, Chicago, one No. 15 portable Lane hoist.

There are constructing at the Baldwin Locomotive-Works, Philadelphia, Pa., four locomotives that are to be run by soda, which takes the place of fire. Soda has much the same power as coal without any of the offensive gases. The engines are nearly finished, and are to be shipped to Minneapolis, Minn., and run in the streets of that city, where steam-engines are forbidden. The engines look like ordinary passenger cars. Inside the boilers are placed five tons of soda, which, upon being dampened by steam, produces an intense heat. When the soda is thoroughly saturated, the action ceases, and then it is necessary to restore it by driving the moisture from it, when it is again ready for use. These engines are the first of their kind built in this country. They have about the same power as those of the New York elevated roads, and will readily draw four light cars. Soda engines are used in Berlin and other European cities successfully, and traverse the St. Gothard tunnel under the Alps, where steam-engines can not be used because the length of the tunnel renders it impossible to devise a system of ventilation that will carry off the foul gases generated by a locomotive.

LABOR AND WAGES.

The strike of the employés of the Columbia Iron Company, at Lancaster, Pa., has been settled, and the men resumed work on the 16th inst. The wages will be the same as paid at the Susquehanna rolling-mill.

The striking coal miners in three of Scott's mines, at Scott Haven, Pa., resumed work on the 14th inst. at the operators' terms. The men have been out for several months for an advance of 5 cents a ton and a check-weighman.

The Executive Board of the Knights of Labor asks that the trouble existing with the employés of the Derby Silver Company, Birmingham, Conn., prior to 1886 be reopened for further negotiations. The company replies that the request can not be complied with.

The strike at the mills of the Mahoning Valley Iron Company, Youngstown, Ohio, has been settled, and all departments were lighted on the 15th inst. The advance in wages has caused roughers at other mills to make a similar demand, but it has not been granted. The increase amounts to $1 a day for each rougher.

At the convention of the miners of the Third District of the Federation to be held at Cumberland, Md., on the 24th inst., new district officers will be elected, including a president and executive board. The constitution and by-laws will also be revised, and a delegate selected to the national convention, to meet in Indianapolis on September 7th.

The Cambria Iron Company, Johnstown, Pa., is making a quiet but determined war upon the Knights of Labor. Almost one hundred employés were dismissed during the week without notice and without assigning a reason. About half of the company's

employés are Knights of Labor, and it is expected that the whole number will be discharged.

A meeting was held by striking nailers at Cummings, Ill., on the 17th inst., and the long strike that has been in progress there for the last fourteen months was brought to an end. The old men will be accommodated by the company as far as possible, and every department of the Calumet Iron and Steel Company will start up with a full force.

To-day every nail mill at Wheeling, West Va., is on in full at the manufacturers' scale, the nailers at the Belmont mill having made application on the 17th for the vacant machines. The trouble with the cold feeders at the Brenwood and La Belle mills has been satisfactorily adjusted, and they have returned to work. The Top mill has also effected a settlement with its striking nailers

The strike of the canal boatmen continues. A conference has been held between the Executive Board of the Union and President Potts, of the Coal and Iron Exchange, but no compromise was reached. On the 20th inst., President F. A. Potts was asked for a conference between the Union and the trustees of the Exchange, for the purpose of trying to end the difficulties existing between them. A conference was called for the afternoon of the 20th inst.

Advices are, that anti-Chinese movements have spread to Alaska. The Chinese employed by the Alaska Mill and Mining Company, on Douglass Island, were obliged to leave by force, notwithstanding that Mr. Treadwell, the company's manager, refused to accede to the demand. The committee of miners on the 6th inst. chartered one of the steamers lying at Douglass Island and seized the other, and loaded the Chinamen on the small vessels, giving them 100 sacks of rice and some tea. The vessels then sailed for Wrangel Island, but a storm arose and they were unable to land. When the Idaho left Alaska, they were beating about near Juneau, both crowded with their unwilling passengers.

COAL TRADE NOTES.

ALABAMA.

Work on the new plant of 300 coke-ovens at the mines of the Pratt Coal and Iron Company goes on rapidly. Mr. J. H. Harris, superintendent of the ovens, has introduced a new feature in the construction of coke-ovens, which, if it proves all that is claimed for it, will cause a revolution in oven-building. Hitherto, the flue in all coke-ovens has been upward; but Mr. Harris reverses this order, and makes this downward. This gives more intense heat, and the resulting difference is said to be in the length of time required to make coke. By the upward flue, it can be make in forty-eight hours, and by the latter in twenty-four, just one half. This is not the only advantage of the new feature. Underneath the new ovens, there is a long archway to receive all the heat given off from the ovens, which, if conveyed properly, can be utilized in running machinery, thus applying a force that, up to this time, has been wasted. A sufficient amount of heat can be obtained from several hundred ovens to run a great deal of machinery. Twelve of the ovens are made according to this new idea, and if the test with these proves satisfactory and its merits are shown conclusively, it will no doubt be utilized very extensively.

ENGLAND.

The number of miners killed by the explosion in the Woodend Colliery at Leigh, on the 13th inst., is now placed at thirty-six. The bodies of twenty-one were recovered, as stated by dispatches up to the 15th inst.

INDIANA.

The opening of the new Chicago & Indiana Coal Railroad has brightened the prospects materially in the Brazil District by affording a direct route to the market and by improved rates. Two new mines have been opened during the month. The monthly pay will aggregate $125,000.

KENTUCKY.

A suit has been filed by the Breckenridge Mining Company, Limited, operating coal mines in Breckenridge County, against the Kentucky National Bank, to compel the bank to pay over $130,000 of funds deposited in the institution for operating expenses. The mines were originally owned by Dr. Kennedy, who sold them to a party of English capitalists, who organized the company, and deposited $200,000 for operating the mines. Recently, the company sought to remove the deposits to another bank, but the privilege was refused. Then the company drew drafts on the bank for the purpose of using the refusal to honor them as the basis for proceedings. The drafts were rejected and the suit was begun. The bank claims that there is a disagreement between Kennedy and the company, that the $130,000 is in dispute, and that it can not pay it out to either without becoming liable, so it leaves it to the courts. Attorney T. W. Gibson, for the company, charges that there has been collusion between the bank and Kennedy to embarrass and injure the company, and announces his intention of bringing suit against them for damages.

MISSOURI.

Messrs. Barger & Payne, who have been working the Fiedler coal mine, near Boonville, Mo., recently sunk a shaft, and at a depth of 45 feet struck a vein of cannel coal, into which they have worked to the depth of over 10 feet.

OHIO.

The new operators of the old Clark mine, at Chapman, have bought out the Youngstown Coal Company, and will assume that name. The large pump has been started and the water is lowering fast.

PENNSYLVANIA.

ANTHRACITE.

Work has begun on two tunnels at Gilberton Colliery, one as an outlet for coal and the other for air. Those tunnels will be driven from the Buck Mountain to the Mammoth vein, and will extend a distance of 65 yards. There are as yet but two lifts of the Mammoth vein worked at this colliery, and, owing to the pure state in which this vein is found here, it will be one of the largest shippers in the region.

The Lehigh Coal and Navigation Company is negotiating for the right of way for a railroad from Wilkes-Barre to Scranton.

BITUMINOUS.

It is stated that land-owners in Mount Pleasant, Sewickley, South Huntington, and Unity townships, Westmoreland County, have sold coal lands since June 1st amounting to $1,200,000.

M. K. Saulsbury, representing Dr. Hostetter and several other capitalists, has accepted options on nearly eight hundred acres of coal land between Latrobe and Youngstown. This last purchase exhausts the marketable coal between Mount Pleasant and Latrobe, and, added to other holdings of the same syndicate, makes a total of about 4300 acres controlled by it in this valley.

TURKEY.

ALBANIA.

Extensive coal-fields have been discovered in the vicinity of Dulcigno. The coal is said to be of the best quality and easily accessible.

GAS AND OIL NOTES.

Exports of refined, crude, and naphtha from the following ports, from January 1st to August 14th:

	1886. Gallons.	1885. Gallons.
From Boston	3,376 947	6,232,983
Philadelphia	91,322,092	87,775,572
Baltimore	10,619,787	6,503,915
Perth Amboy	2,616,731	
New York	239,312,587	226,899,556
Total exports	347,248,144	327,412,026

The Chief of the Bureau of Statistics reports the total values of the exports of mineral oils from the United States for the month of July, 1886, and during the seven months ended July 31st, 1886, as compared with similar exports during the corresponding periods of the preceding year as follows: July, 1886, $4,702,823; July, 1885, $4,658,960; seven months ended July 31st, 1886, $27,402,885; seven months ended July 31st, 1885, $27,125,132. These exports comprise about 99 per cent of the total exports in mineral oils.

FRANCE.

A dispatch from Paris states that a spring from which flows petroleum of a fine quality has been discovered at Ferrand, Auvergne, on the estate of M. Alfred Arbaux.

MARYLAND.

The Oil and Natural Gas Company of Cumberland will begin work at once. The contractor states that the necessary machinery for boring is shipping. It is understood that boring will begin near Wills Mountain.

OHIO.

The Ohio Valley Gas Company's supply of gas, it is reported, has so diminished that Wellsville manufacturers have begun to change their furnaces, and will go back to the use of coal. The company supplies East Liverpool first and Wellsville comes in second.

PENNSYLVANIA

The Baden, Chartiers Valley, and Pennsylvania natural gas companies are now at work on a mutual agreement by which the controversies between companies, when two or more are laying pipe on the same street, or when one company desires to cross the main line of another on its way to an unoccupied district, may be settled. The plan provides that either of the parties to it may cross the main of another peaceably, on condition that the object in point is in an unoccupied district. The other action of the agreement is to the effect that ruinous competition between the companies will not be carried on.

J. M. Guffey, George H. Dimmick, John H. Galey, W. S. Guffey, and Walter S. Mitchell have filed an application for a charter for the Bellevue Natural Gas Company. The company will drill for and supply natural gas in Alleghany County.

The Southwest Pennsylvania Transportation Company is grading preparatory to the erection of six 35,000-barrel tanks at Ewing's Mills, Washington County.

WEST VIRGINIA.

The Natural Gas Illuminating Company has been organized at Wheeling with a capital stock of $50,000. R. C. Elliott was elected President, T. H. Given, Vice-President; L. H. Williams, Secretary, and Charles B. McLean, Treasurer. The object of the company is to furnish natural gas for illuminating purposes. It controls in this part of West Virginia and four or five counties of Ohio and Western Pennsylvania, a patent burner which it is claimed will produce a better light than coal or oil gas. The burner resembles an inverted argand burner, and the flame is covered by a globe. Although not as intense, the light resembles the incandescent electric light. The illuminating company is composed of the same stockholders as the Wheeling Natural Gas Company, which corporation in reality owns the franchises.

WYOMING.

The Dallas oil wells in the Shoshone District are steadily going down. In the district, a great deal of assessment-work is doing. Surveyors are at work seeking for a more feasible outlet for a pipe line than the one heretofore projected, the objective point of which is Point of Rocks, on the Union Pacific.

GENERAL MINING NEWS.

The total shipments of ore from Ashland during the season of 1886, and the week ended August 11th, were as follows:

GOGEBIC DISTRICT.			
Ashland	33,677	Norrie	67,118
Aurora	39,251	Odanah	2,216
Ascherman	5,833	Pabst	7,608
Bessemer	2,089	Puritan	830
Brotherton	7,043	Sunday Lake	3,669
Iron Chief No. 2	530	East Norrie	5,869
Iron King	10,729	Pewabic	55
Ironton	4,910		
Colby	130,946	Total ore from Ashland	335,556
Germania	8,620		
Kakagon	4,563		

AFRICA.

The discovery of gold at Durban, South Africa, has caused a "mining fever" there, and since this is contagious, people are advised to practice caution.

ARIZONA.

GRAHAM COUNTY.

ARIZONA COPPER COMPANY.—The concentrators are completed. The works are adjacent to the smelters, and are about ready for operation.

ARKANSAS.

ST. LOUIS MANGANESE MINING COMPANY.—The branch of the St. Louis, Iron Mountain & Southern Railroad, which is building to the mine, will be completed by September 18th. The mines are worked extensively, and large quantities of ore, amounting to several thousand tons, await transportation. The Johnstown, Pa., syndicate, which has a lot of leased property, is hauling the ore at the rate of $2.50 a ton, and is monopolizing all other means of transportation that it can get. The managers of the St. Louis company prefer to wait for the completion of the road, when they will obtain transportation much cheaper.

CALIFORNIA.

SIERRA COUNTY.

PRIMROSE.—This company has purchased the De Long claim and extension. A saw-mill has recently

been erected, and operations will be again resumed at the mine.

YOUNG AMERICA.—At this mine, a clean-up of $38,500 was made for a twenty-eight day run last month. The additional ten stamps that are going into the mill will be in operation this month.

CANADA.

PROVINCE OF ONTARIO.

SILVER ISLET.—It is stated that there is a probability of the resumption of work at this company's property, with the debt of the company paid off and a large working capital provided.

SILVER MOUNTAIN.—Mr. A. McEwen, of London, will soon arrive at Port Arthur. In recent letters, he intimates the likelihood of this property being placed with a provision made for a sufficient working capital.

COLORADO.

ARAPAHOE COUNTY.

To prevent, if possible, great loss on new purchases, the purchasers in the Denver public ore market have raised smelting charges to $20 a ton on high-grade ores. Another safeguard is sought in bringing the deduction for loss on silver back to the old standard of 10 per cent.

CHAFFEE COUNTY.

DANDY.—Work is to be resumed on this mine on Mount Princeton. Shortly after the discovery of the Dandy, six years ago, some very high-grade ore was obtained from it, ranging in value as high as 3000 ounces in silver to the ton. No systematic development has ever been done, however, and the property to-day is nothing more than a prospect.

CLEAR CREEK COUNTY.

FREELAND.—The official report for July shows gold, $21,173.68; silver, $4509.85; copper, $247.70; total, $25,931.23. Silver valued at New York quotations.

PAY ROCK CONSOLIDATED.—Steam was connected with the new engine last week, and every thing works admirably. All that now remains to start operations in full blast will be finishing on the shaft. This has been a long and expensive piece of work, but its value to the property can not be overestimated.

PLUTUS.—The bullion production for July as by official advices was gold, $4585.76; silver, $3621.71; copper, $167.90; total, $8375.37.

GILPIN COUNTY.

A tramway company has been organized in this county with a capital stock of $50,000. The track will be a 30-inch gauge, and the cars, to be drawn by locomotive, will hold a cord of ore each. Work will begin at once, and the road be pushed to completion. It will run from the mills at Black Hawk to all the principal mines on Gunnell Hill, Quartz Hill, and Nevadaville. Contracts have already been made with the principal mines.

COURTLAND.—This company owns the Caledonia, Boston, Vermillion, Keystone, and Courtland mines, which, with the Quaker City, form a group of six veins. It is understood it will before long develop other veins forming the group.

GILPIN AND BOULDER COUNTIES.

GILPIN GOLD PLACER, LIMITED.—The Denver *Tribune-Republican* has come forward with the past history of the property of this company, which was recently organized in London, and to which we referred in our issue of July 31st. It says: Shortly after the first discoveries of gold in Gilpin County, there were discoveries made on South Boulder Creek, at what was then called Deadwood. The locality was at the mouth of Beaver Creek. That year, from the cañon to the head of the creek, the ground was pretty thoroughly prospected, but it was not worked at a profit. Year after year since then, it has been prospected, and claims have been located only to be abandoned. Probably every foot of it has been located and abandoned two or three times over. Occasionally attempts have been made to work it systematically, but the fact that the work was not continued for any considerable length of time gives pretty good reason for a suspicion that it did not pay. About 1200 acres have been patented, lying on both South Boulder and Beaver creeks. It is the part known as the Taylor Placers, through which ran the old wagon-road from Boulder to Black Hawk, where thousands of men have panned the dirt, and found nothing very promising. This 1200 acres is offered for sale in London under the name of the Gilpin Gold Placers. The price that it is offered at is $125,000 in stock of the company and $100,000 in cash. The prospectus says it is no mining risk. There may be those who will say that it is true, inasmuch as it is no risk, but a robbery. It says it is situated in the heart of the gold-producing region of Colorado; and that the lowest estimate of profits shows a dividend of over 30 per cent per annum. There is a saying about going away from home to learn the news, which is verified in this case, because it will certainly be news to all old-time miners that there is any such rich dirt in this country. What do all those fellows think who have washed for gold there many times and failed to make wages? Our Denver contemporary deserves great credit for having given the inside history of this company, which is one of many floated on the English for the benefit of a few "insiders."

LAKE COUNTY.

Mr. A. W. Geist, general manager of the Pueblo Smelting and Refining Company, has advised Mr. W. L. Thompson, his representative at Leadville, that he had decided to withdraw from the Leadville ore market, and instructed him to at once cease purchasing ore. Existing contracts will be completed, but it is desired that the ore be sampled and settled for at Pueblo. The only contracts outstanding are those of the Adams and Silver Cord mines. The sudden and peculiar manner in which the announcement was made, and the ambiguity of the reasons assigned, lead many to believe that the order is either intended to force concessions from the railroad companies, or that there is some other important cause that has not yet been disclosed.

From the Leadville *Herald-Democrat* we take the following:

AGASSIZ.—The Wolfe Tone mine, the property of this company, shipped a large amount of both sulphide and carbonite ores during July. The ore-bodies in the northern workings have opened up an enormous deposit of fine carbonate ore, which is separated from the southern ore-chute by a large deposit of sulphide ore. The latter material has lately disclosed marked improvement in the value of its silver contents, and is now running from 30 to 40 ounces in silver to the ton, as compared with from 8 to 15 ounces when first discovered.

CHRYSOLITE.—The crushing and amalgamating mill began partial operations on the 9th inst.

IRON SILVER.—Since the 9th inst., the concentrating mill has been running day and night. Previous to that time, the mill was only operated during the daytime. Since running double shift, the daily product of the mill has been brought up to from 25 to 28 tons of concentrates. The average value of the concentrates is 20·8 ounces in silver to the ton, and 22·5 per cent of lead, the stock previous to concentration having averaged four ounces in silver and three per cent of lead. The operation of the mill, at the above figures, will net the company at least $400 a day, which may be considered a clear profit, as the dump from which the crude material is derived was long since considered worthless.

LEADVILLE TUNNELING, MINING, AND DRAINAGE COMPANY.—The preliminary work on this enterprise is advancing satisfactorily, and there is some probability that the work may be carried through. If the shaft on East Sixth street, down nearly 300 feet, can be continued to a depth of 470 feet, so that tunneling can be advanced both ways from this point, it is thought the work will be put through with little delay. The parties sinking the shaft are anxiously awaiting a solid formation, as then much better headway could be made than in working through boulder wash. Sinking through the latter material with a strong flow of water proves difficult and expensive. To one familiar with the great number of pumps continually added to the mines on Fryer, Carbonate, and Yankee hills, and the large amount of coal consumed in pumping water, the importance and value of an efficient drainage tunnel are apparent. An enterprise of this character will reduce the cost of mining in the new deep and wet mines, from 25 to 40 per cent, and facilitate the extraction of a great deal of ore that otherwise would remain buried on account of its low grade or inaccessible position.

LEE BASIN.—The Shamus O'Brien shaft on this property is to be sunk to mineral as rapidly as practicable. About sixty feet will complete the work. As soon as the shaft is completed, stations will be excavated and a large steam-pumping plant placed in position.

MORNING AND EVENING STAR.—During July, the two mines produced more silver and lead ore than during the previous month, although the output of argentiferous iron was a trifle less. The output was classified as follows: Silver-lead ore, second contact, 1847 tons; ditto, lessees, 732 tons; iron ore, 1111 tons; total, 3690 tons. The mine is in splendid condition, and the product of silver and lead ore during August will be fully as large as it was in July, while a marked increase is expected in the iron ore yield. The second contact of the Morning Star has proved exceptionally rich. Quite a large block of ore still extends from the McHarg shaft eastward to the Maid of Erin line.

ROBERT E. LEE.—The Cornish pump in the principal shaft has started up, and as soon as the shaft, which has now a depth of 345 feet, has been drained, it is to be sunk deeper at once in search of a lower ore-body.

SMALL HOPES.—New work on this group is advancing. The Emmet shaft is down about 400 feet. The Blaine shaft, having attained a depth of 280 feet, drifting to the eastward has begun. This is the level on which the rich ore in the Lee Basin was discovered a short time since, and a vigorous effort will be made to discover its western extension. The new drift will run eastward to the Lee Basin line, and then along the line in the plane of contact. The progress in the development of the Lipe ore-chute through the May Queen territory is carefully noted, and as soon as the course and continuance of this ore-chute can be determined sufficiently to demonstrate its extension into the Small Hopes property, the Elkins shaft will be sunk to prove it up.

TERRIBLE.—This company offers its entire property for lease under favorable terms.

TIP TOP.—This mine, during July, shipped a litt over 200 tons of ore, netting something over $8000 A lot of 60 tons was settled for on the 10th inst. which gave 151 ounces in silver to the ton, and higher grade ore is shipped at present.

SUMMIT COUNTY.

IRON MASK.—It is reported that at a depth of 725 feet in the incline, an immense cave was struck, showing solid masses of mineral. The average assay is 450 ounces in silver, 22 ounces in gold, and 15 per cent in lead.

NARHOLD.—This mill, at Breckenridge, equippe with a Wiswell pulverizer and electric amalgamatin appliance, has done well. It is operated as a custom mill, and is capable of handling twenty tons of ore day.

RYAN.—This mill, at Lincoln, with two Huntington centrifugal pulverizers, is daily reducing a larg amount of rich gold quartz for the mines in that vicin ity.

WARRIOR'S MARK.—The mine has been working during the spring and summer with fair success. The lessee closed down the mine about a week ago, pending a renewal of his lease on the property.

DAKOTA.

LAWRENCE COUNTY.

CALEDONIA.—The superintendent's report of the 9th inst. states that work is progressing. The east cross-cut on the 500-foot level advanced 8½ feet; total, 23 feet. The west cross-cut advanced 13½ feet, and encountered the foot-wall; total distance from the drift to the foot-wall. 33½ feet. They are now continuing the drift south, which advanced 3 feet. The drift on the east vein advanced 11 feet; total, 23 feet.

IRON HILL.—Bullion shipments are made regularly. The ten additional stamps were put in operation on the 14th inst.

MINNA.—This company has made arrangements to ship ore to Omaha. The ore contains gold, silver, and lead; the latter, it is thought, will pay the shipping expenses.

UNCLE SAM.—The hoisting of ore from the workings has begun, and the mill was to be in operation before this date.

GEORGIA.

WHITE COUNTY.

NACHOOCHEE PLACER GOLD MINES, LIMITED.—This company has been organized in England with a nominal capital of £200,000, of £1 each. The object is to acquire mining property and rights in White County, from William Frederick Curtis, and to carry on the general business of miners and other matters connected with mining.

MEXICO.

EAST AREVALO.—This company has been organized in London, for the purpose of acquiring and further developing the East Arévalo silver mine, locally known as Laguna, situated in the mineral district of El Chico, in the State of Hidalgo. This mine immediately adjoins the Arévalo and the Jesus and San Rafael mines. The capital is £150,000, in shares of £1 each, and the present issue is £100,000. Four hundredweight of ore taken as a sample from the lode is certified by Messrs. Johnson, Matthey & Co. as giving an average of 1495 ounces of silver per ton. The amount of purchase-money has been fixed at £100,000, and the vender, Mr. J. Rule Daniel, of Cambourne, Cornwall, it is said, has such confidence in the success of the undertaking that he is willing, if required by the directors, to accept fully paid-up shares in the company in payment of the whole purchase-money. Two thirds of the capital of the company is offered unreservedly to the public, in order to fulfill the requirement of the Stock Exchange. It is stated that within half a mile of the property are large smelting and reduction-works, where the ores can be reduced at a uniform charge of £4 a ton of 2000 pounds, the silver produced being sent to the mint at Mexico. The percentage of gold contained in the ore is very considerable, and is estimated to be always more than sufficient to cover the cost of smelting. The mine is only eight miles from a railroad at the city of Pachuca, to which there is a good road. Pachuca is connected by railroad with the City of Mexico in the south, and Upper Mexico and the United States of America in the north. There is a supply of water amply sufficient for all purposes, the climate is temperate and healthy, labor is cheap and plentiful, and all materials required for the mine can be obtained at fair prices. Abundance of timber can be obtained from the forests on the surrounding hills. Messrs. J. Taylor & Co. are the consulting engineers.

LA NOIRA.—The company has shipped a large pump to its mines in the State of Zacatecas, capable of lifting water 700 feet, and other machinery will follow. The mine is now yielding high-grade ore from the developments, and by the first of October the managers expect to have a full complement of workmen on duty and the output of ore at the maximum of the mine's capacity.

MICHIGAN.

COPPER MINES.

ALLOUEZ.—According to the Calumet *News*, it has ascertained from head-quarters that under ground every thing is looking better than three months ago, which goes back of the time when the boom began. Nevertheless, there is danger of the mine being closed for a short time, unless something occurs to keep up the water supply, as the dam is nearly, if not quite, dried up.

CALUMET & HECLA.—At the annual meeting, held in Boston on the 18th inst., the following gentlemen were elected directors: Alexander Agassiz, Quincy A. Shaw, George Higginson, H. H. Hunnewell, and James N. Wright. At a subsequent meeting of the directors, Alexander Agassiz was re-elected President, and C. W. Seabury Treasurer and Secretary.

FRANKLIN.—Advices from the mine dated the 11th inst. state that every thing continues to run smoothly. Work will begin on the sinking of No. 2 shaft below the twenty-eighth level about the last of the month. The lode in the twenty-eighth or bottom level is showing a little stamp work. The twenty-seventh level is opening up some fair stamping ground. There is no change to notice at No. 3 shaft. The bottom level at No. 5 shaft is showing a good lode for barrel and stamp copper.

KEARSARGE.—No. 1 shaft is down about 89 feet, and No. 2, the original exploring pit, has reached 100 feet. The engine, boiler, and hoisting plant, formerly used at the Ahmeek mine, have been moved to the mine and placed in a building lately erected a short distance from where No. 2 shaft-house will stand. The indications continue favorable.

RIDGE.—Eighteen tributers are at work, meeting with fair success. About eighteen tons of copper was the result of their work for June and July. Many of them are now working in good ground, which, if it continues as now, will turn out considerable copper before their tribute ceases, October 1st.

IRON MINES.

The following statement, given by the Marquette *Mining Journal*, shows the amount of iron ore shipped from the ports of this district for the season of 1886, up to and including Wednesday, August 11th:

	Tons.
Marquette—Marquette District	485,495
St. Ignace	36,907
Escanaba—Marquette District	308,353
Menominee District	481,549
Grand total of lake shipments	1,312,304

Shipments of Pig-Iron.

Pioneer furnace	2,575
Deer Lake furnace	560
Vulcan	6,761
	9,896

The gain over the shipments from the above ports during the same period in 1885 is 166,191 gross tons.

MINNESOTA.

ST. LOUIS COUNTY.

MINNESOTA IRON COMPANY.—During the season of 1886 and for the week ended August 11th, there were shipped from Two Harbors 156,343 tons of ore, from this company's mines.

MONTANA.

Messrs. W. H. Patterson, Samuel B. Rice, and others, have bonded to Saly Raunheim for ninety days, 157½ acres of gold placer ground on Fish Creek, and 80 acres of the Golconda placer claim, situated in the same locality. Also the right to construct ditches and reservoirs as Mr. Raunheim may require. The placer ground on Fish Creek is renowned for large yields of gold.

Arrangements have been made for the erection of a test coke-oven at the Williams coal mine, about eight miles from Livingston, Gallatin County, which is building. Should the test prove successful, an indefinite number of ovens will be erected.

DEER LODGE COUNTY.

ANGLO-MONTANA MINING COMPANY, LIMITED.—This company has been organized in London with a capital of £120,000, shares £1 each, to acquire and work a group of gold and silver mines in the Stemple Mining District. The mines secured by the company comprise the Dr. Parker mine, located 1500 feet in length on the main lode; Griff mine, located 1500 feet on continuation of the same lode; Elgie mine, located 1500 feet in length on a strong parallel lode; Wormer mine, located 1500 feet long on a wide and valuable cross lode; mill-sites, with five-stamp mill and other buildings, ore on the dump, etc. The valuable water rights appertaining to the above mines afford an ample supply for from 10 to 15 stamps working all the year round. Six shafts at various points and different depths have been sunk and the main lode has been traced for the whole length (3000 feet). It is stated that Thomas D. Sankey, C.E., of London, and late of the Montana Company, Limited, estimates the reserves of pay ore in the Parker and Griff main lode above the level of the tunnel that is now driving to strike the vein at 225 feet depth at 180,000 tons. The vender has accepted 35,000 shares in part payment. The above mines are said to be near and upon the same mineral belt as the Drum Lummon (Montana Company, Limited), and on the strength of the success of which, this company is floated on the English market.

GRANITE MOUNTAIN.—During the week ended the 14th inst., 29 bars were shipped, containing 30,471 ounces pure silver and 11·638 ounces of gold.

LEWIS & CLARKE COUNTY.

Assayer Braden, of the United States Assay-Office at Helena, state that skippers are no longer compelled to pay transportation charges on their shipments. The change went into effect recently, and now bullion exporters can sell their product at Helena to the same advantage as in New York.

BOSTON & MONTANA.—The official report for July shows the production to have been $28,694.17; pay-rolls, $12,000; supplies bought, $7265; salt, $1700; profit, $7255.

MONTANA COMPANY, LIMITED.—The bullion output for July was $126.100, produced from 3100 tons of ore. This is a falling off in the product of the Drum Lummon, due to the poorer quality of the ore and the decrease in the number of days' working of the mill.

SILVER BOW COUNTY.

ALICE.—Official advices show the production during July to have amounted to $88,894.17.

LEXINGTON.—The official statement for July shows gold produced, $7620; silver, $50,400; total, $58,-020.

MOULTON.—At the annual meeting, held at Butte, Hon. W. A. Clark was re-elected President; E. H. Murray, Vice-President; J. Ross Clark, Treasurer; Alexander J. Johnston, Secretary; John M. Moore, Assistant Secretary; and Joseph K. Clark, Superintendent. Official advices shows the bullion prodution during July to have amounted to gold valued at $3361; silver, $66,818; total, $70,179.

NEVADA.

ESMERALDA COUNTY.

CANDELARIA WATER-WORKS AND MILLING COMPANY, LIMITED.—The new mill started up lately on custom ore, and after running three days, resumed crushing Georgene ore.

HOLMES.—The ground opened up in the new 12th level looks like the old hill bodies, where they were large and strong. The ore is yellow chloride of good grade. All of this country is new, being east of all work done by the old company. Mill No. 1 is running on Mount Diablo. Mill No. 2 started on full time on the 1st inst., on Holmes ore. Every thing is in good order and doing good work.

MOUNT DIABLO.—In accordance with orders received from the San Francisco office, the work of taking out ore has been stopped, and 58 men discharged, the men remaining being engaged in exploratory work. Shipping ore to the mill has been stopped, and the ore at the mill will be worked up and the mill cleaned up.

SILVER PEAK.—One of the Hubert concentrators has been put up at this mine. The tailings deposit upon which the concentrator is working contains about 18,000 tons. It is located at the old Blair mills, and carries both gold and silver.

EUREKA COUNTY.

GEDDES & BERTRAND.—The company's mill in Secret Cañon was destroyed by fire on the 15th inst.

STOREY COUNTY.

From the Virginia City *Chronicle*, we take the following:

NORRIE CONSOLIDATED.—The mines known as the Norrie, Reynolds, and Mack, located on the sunset slope of Mount Davidson, were recently consolidated under the above name. The development of the property will be carried on through the Norrie shaft. This shaft is down nearly 300 feet below the surface, and is in two compartments. Two rich stringers of gold-bearing quartz were passed through in sinking the last at a depth of 268 feet below the surface.

CONSOLIDATED CALIFORNIA & VIRGINIA.—During the week ended the 7th inst., 1705 tons of ore were shipped to the Eureka mill. The average value of the ore milled during the week, according to assays from battery samples, was $14.52 a ton for that crushed at the Morgan mill, and $16.52 for that crushed at the Eureka mill. Bullion valued at $73,033.55 (by assay) was shipped to San Francisco. The falling off in ore shipments from this mine during the past week is due to the shutting down of the Morgan mill at Empire. Ten stamps in the California mill were to start on the 9th inst. on ore from above the 1750 level. Two Frue concentrators have been set up, and if the experiment of working the ore by that process proves profitable, the remaining 70 stamps will speedily be set in motion and a sufficient number of concentrators added to handle the pulverized ore.

HALE & NORCROSS.—West cross-cut No. 1, sent in from the south lateral drift on the 3200 level 60 feet north of the south line, is in 15 feet. The material penetrated in its advance was quartz-carrying seams and bunches of ore similar to the formation on the 3000 and 3100 levels.

SAVAGE.—The main southeast lateral drift on the 600 level is out 220 feet south of the Gould & Curry line. The last 45 feet advanced is in good ore.

NEW MEXICO.

SOCORRO COUNTY.

IMPERIAL.—This mine, which was recently sold to Chicago parties for $43,000, is awaiting the necessary machinery now on the way from the East, when the active exploitation and development of the property will begin in earnest. It is even rumored that a smelter is to be erected at Socorro by the present owners.

UTAH.

BEAVER COUNTY.

HORN-SILVER.—The frequent requests we have had have led us to make inquiries on the ground about the affairs of this company, which have been under a cloud for some time. According to our correspondent, no ore has been shipped for some time. The ore that has been sampled has come from the 900 level, and has been growing poorer as they work up on the body,

which is said to be large. No ore has been found on the 1000 level, which tapped the ledge two months ago. It is thought that the ore-body extends from the 900 to the 1000 level, and could be found, if that were desired. The 1100 level is running; and since the rock is very hard, it will not reach the ledge for some time. Rumor has it that a concentrator is to be erected if ore is found on the 1000 level. A lot of ore was tested at the Campbell concentrating mill at Milford, without success.

JUAB COUNTY.

BULLION-BECK.—According to the Salt Lake papers, four attachment suits have been filed against the Bullion-Beck Mining Company. The first suit is brought at the instance of T. R. Jones & Co., and is for the recovery of $10,638.43, with interest from the 3d day of August, 1886. The Germania Lead-Works also sues for $5000 and interest at the rate of one per cent from the 4th of March, 1886. George M. Scott & Co. sue for $4114.42, with interest from the 1st day of July, 1886. The Utah & Montana Machinery Company's claim is for $1074.44, with interest from the 28th day of July, 1886. It is stated that this trouble was due to the recent suits of the Bullion *vs.* Eureka mining companies.

WASHINGTON COUNTY.

CHRISTY.—During July, this company produced, as by official reports, $27,200.26.

LEEDS.—This mine, under lease to John Kemple & Co., is shipping 400 tons of fair-grade ore to the Nesbit, Bolley & Co.'s leaching-works. Considerable ore is in sight, and a force of miners will be put on.

VIRGINIA.

The Cleveland, Ohio, Rolling-Mill Company, which is in search of steatite or soapstone mines, where it can get a pure article for use in marking iron, sent letters asking for this information to the general freight agents of each of three leading railroads of Virginia; and all these referred the letters to Major Jed Hotchkiss, who, as is well known, is an authority on all matters relating to the "Virginias." Major Hotchkiss states that soapstone beds are very common in all portions of Midland, Piedmont, and Blue Ridge, Virginia, the regions in which the Archæan or metamorphic rocks abound; especially may this be said of a belt of country extending through Eastern Piedmont, from the Potomac to the North Carolina line, deposits of fine quality having been uncovered, and in some cases worked for local use in Loudoun, Fauquier, Culpeper, Madison, Orange, Greene, Albemarle, Nelson, Amherst, Campbell, Bedford, Henry, and Patrick counties. Samples of steatite were collected by him for the Virginia exhibit of minerals at the New Orleans Exhibition from Midland Virginia: From Amelia Court-House; from Appomattox, Buckingham, Campbell, Fairfax, Halifax, and Nottaway counties. From Piedmont: From Albemarle and Henry counties; from near Patrick Court-House, Stuart station, and from the Blue Ridge grand division; from near Floyd Court-House. Among other localities may be mentioned beds in Nelson, Franklin, Albemarle, Campbell, and Madison counties. He states that the want of the Cleveland Rolling-Mill Company can be best supplied from the Floyd County deposit, concerning which Mr. O. Barrett, of Abingdon, Va., can give all needed information; or from the beds near Orange Court-House, of which Judge Williams, of that place, can give information. The large beds of steatite of the best quality, at a number of the localities named above, ought to be extensively worked for the purposes for which similar quarries in other States are extensively exploited; that is, for furnace linings, fire-place backs and jambs, sinks, etc.

STAFFORD COUNTY.

RAPPAHANNOCK.—A recent letter from the superintendent states that the vein in both the south and north drifts is widening, and the ore is increasing in richness. The galena streak is enlarging, and free gold is often visible in the seams where the galena occurs. A cross-cut will soon be made.

WISCONSIN.

At a meeting of gentleman interested in the Wisconsin Central Railroad, the entire capital necessary to construct the new railroad from Iron station to the Gogebic Iron syndicate lands and Hurley, a distance of twenty-four miles, was subscribed, the greater part of the amount being taken by Messrs. Rockefeller and King, of Cleveland.

BULLION PRODUCTION FOR 1886—SPECIAL OFFICIAL REPORTS.

MINES.	States.	Month of June.	Year from Jan. 1st, 1886.
		$	$
Alice, G. S	Mont.	104,043	**579,200
Boston & Montana, G.	Mont.	42,604	363,891
Caledonia, G.	Dak.	13,791	110,376
Christy, S.	Utah.	26,254	138,161
Chrysolite, S.	Colo.	** 19,686	111,171
Colorado Central, S.	Colo.	25,109	138,466
Daly, S.	Utah.	.....	126,728
Deadwood-Terra, G.	Dak.	62,885	270,869
Derbec Blue Grav., G. S.	Cal.	15,952	96,469
Elkhorn, G. S.	Mont.	18,617	120,889
Eureka, S. L.	Nev.	27,819	147,559
Father de Smet, G.	Dak.	——	61,376
Freeland, G. S. C.	Colo.	28,367	155,958
German Consolidated, G.	Colo.	.....	53,673
Granite Mountain, S.	Mont.	148,600	741,100
Head Center Cons., S.	Ariz.	——	4,633
Head Center & Tranq., S.	Ariz.	——	25,818
Hecla, G. S. L. C.	Mont.	.....	251,303
Helena, G. S. L. C.	Mont.	.....	240,234
Holmes, S.	Nev.	26,675	284,404
Homestake, G.	Dak.	92,386	581,305
Hope, S.	Mont.	13,379	71,022
Independence, S.	Nev.	15,000	15,000
Iron Hill, S.	Dak.	.....	**204,559
Iron Silver, S. G.	Colo.	74,093	398,681
J. D. Reymert, S.	Ariz.	723	1,206
Kentuck, S.	Nev.	*652	2,215
Lexington, G. S.	Mont.	71,101	496,066
Montana Limited, G. S.	Mont.	159,800	808,800
Moulton, G. S.	Mont.	62,416	377,906
Navajo, G. S.	Nev.	32,602	32,602
New Pittsburg, S.	Colo.	——	5,230
Ontario, S.	Utah.	.....	769,416
Plymouth Consolidated, G.	Cal.	.....	255,473
Plutus, G. L. C.	Colo.	11,383	106,432
Ropes, G. S.	Mich.	5,240	19,431
Standard Consolidated, G.	Cal.	24,672	103,791
Tombstone, G. S. L.	Ariz.	**†78,960	423,307
Total		.....	$8,694,720

G., gold; S., silver; L., lead; C., copper; M., mica. Silver valued by the different companies from $1@$1.29 per ounce; gold, $20.67. †Not including value of lead and copper. ** Silver valued at $1.29. * Royalty. ‡ Net. § Ore sales. ‖ Not official. —— No shipments during month mentioned.

MARKETS.

NEW YORK, Friday Evening, August 20.

Silver.

DATE.	London. Pence.	N. Y. Cents.	DATE.	London. Pence.	N. Y. Cents.
Aug. 14.	42⅛	92	Aug. 18	42 3-16	91⅜
16.	42⅜	91¾	19	42 3-16	91⅜
17.	42 5-16	91½	20	42¼	91½

Silver has declined in London under lower India exchange, but is supposed to be firm at the present figures.

New Silver Certificates.—It is learned at the Treasury Department that the new silver certificates authorized at the last session of Congress will not be ready for issue much before the 1st of November. The designs of the plates have been prepared in part, and were recently approved by Acting Secretary Fairchild. The $1 certificate contains a vignette of Mrs. Martha Washington; the $2 certificate a vignette of Major-General Hancock in full uniform; and the $10 certificate a vignette of Vice-President Hendricks. The design for the $5 certificate has not yet been selected. It is said that either General Grant or General McClellan will be selected as the vignette.

Foreign Bank Statements.—The governors of the Bank of England, at their regular weekly meeting, made no change in the bank's minimum rate of discount, and it remains at 2½ per cent. During the week, the bank gained £349,000 bullion; and the proportion of its reserve to its liabilities was raised from 42 to 44 1/16 per cent, against 46 1/16 per cent at the same date last year. On the 19th inst., the bank lost £96,000 bullion on balance. The weekly statement of the Bank of France shows a gain of 5,950,000 francs gold and a gain of 3,650,000 francs silver.

Copper.—Prices of Lake copper have become very firm. We hear of sales at 10·40c. spot to consumers. On the Metal Exchange, the price is 10·30@10·35c. for spot, but very little could be purchased at that figure. European orders for Calumet & Hecla are in, limited 10¼c. cash, for large quantities, but could not be filled, even at 10.50c. Europe must make up its mind to pay higher prices, and all manipulations on the other side, by keeping the price of Chili Bars down, will not help. No attention is paid here to this artificial depression of prices of copper. Exports of furnace material amount almost to nothing. We shall publish next week a comparative statement of exports, according to Washington official reports. Other brands continue to be quoted at 9½@10c. No transactions are reported. Chili is quoted to-day, £39 7s. 6d. Best Selected, £42 10s. to £43.

Quotations at the Metal Exchange to-day: Lake copper, spot, 10·30c.; August, 10·30c.; September, 10.35c.; October, 10·40c.; November, 10·45c.; December, 10·55c. From Montana, we hear that the Anaconda continues to run only eight furnaces to cover contracts made for the next five months. Should the condition of the market then not warrant further smelting, a complete shut-down may be looked for.

The following are Merton & Co.'s statistics of stocks, etc., in England:

Stocks in England and France, and afloat thereto:	July 31. 1886.	1885.	1884.
	Tons.	Tons.	Tons.
Stock in Liverpool and Swansea, Chili Bars	38,482	30,584	22,934
Stock in Liverpool and Swansea, Chili ingots	20	20	310
Stock in Liverpool and Swansea, Chili ores and Regulus (fine)	434	1,636	1,144
Stock in Liverpool and Swansea, other stuff (fine)	4,774	4,352	4,212
Stock in London, foreign copper (chiefly Australian), and landing	7,004	5,302	3,512
Stock in Havre and Bordeaux, Chilian and other bars	635	530	1,260
Stock in Havre and Bordeaux, other copper	398	1,547	460
	51,747	43,971	33,832
Advised from Chili by mail and cable, fine copper	9,060	10,975	9,087
Advised from Australia, by mail and cable, fine copper	600	1,477	1,033
Visible supply	62,247	56,423	44,552

Tin.—The London market continued to decline during the week from £99@£97 17s. 6d. spot. About 200 tons were sold at the Metal Exchange. The London decline depressed the market here very little. Spot sold as low as 21·60c., owing to heavy arrivals from Europe, and also to the tight money market.

Cable advices to-day quote spot, £97 17s. 6d.; three months, £99.

Quotations at Metal Exchange: Spot, 21·60c.; August, 21·65c.; September, 21·65c: October, 21·75c.; November, 21·80c.; December, 21·80c.

Lead.—Sales of 500 tons for August and September delivery were made during the week at 4·75c., and it is said that more lead is obtainable at this figure. Smelters ask 4·80c. to 4·85c. Manufacturers, it appears, have as yet no confidence in prices, and buy from hand to mouth only. Foreign is offered at 4·80c. London cable advices of Soft Spanish, to-day, £12 15s. English lead, £13 5s.

We quote manufactures: Sheet-Lead, 7¾c. net, and Lead Pipe, 6¾c., less the usual 20 per cent discount. Shot, Buck and Chilled, $1.45 per bag, in 25-pound bags.

Messrs. Everett & Post, of Chicago, telegraph as follows to-day:

Market quiet and dull, prices unchanged; demand is only moderate, and but very little doing. Offerings are only moderate, but sufficient for all requirements. Sales will scarcely foot up 270 tons, at 4·65c.

Spelter.—London cables unchanged at £13 7s. 6d. for Silesian; here we quote 4½@4¾c. for Western brands, according to quality; 6¼@6½c. for New Jersey; and 8¾c. for Bergenport Lehigh. Foreign Spelter, 4·80@4·90c.

Sheet-Zinc.—Domestic is firm at 5½@5·80c.

New Jersey Zinc Oxide is quoted 3¾@4¼c.

Antimony.—Market has been firm at 9@9¼c. for Cookson's, and 7·90@8c. for Hallett's.

Nickel.—We quote 60@70c. nominal.

Bismuth—Is quoted at $2@$2.25 a pound.

Aluminium—Is quoted at $1 an ounce.

Quicksilver—May be quoted at 51@54c.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, August 20.

Iron Ore.—The following are standard prices of Lake ores at Cleveland, but we understand they are shaded:

No. 1 Specular and Magnetic Bessemer ores, per ton	$6.00@6.25
No. 1 Specular (non-Bessemer) ores, per ton	5.00@5.50
Bessemer Hematites	4.50@5.25
Non-Bessemer Hematites	3 75@4.25
Gogebic Range ores	5.00@5.25

Freights from Escanaba are $1@$1.10 a ton, Marquette $1.30, and Ashland $1.40.

New York prices for foreign ores are from 8@9 cents per unit.

American Pig.—This market continues to be dull and featureless, and prices remain unchanged.

We continue to quote for standard Lehigh brands, tide-water delivery: No. 1 X, Foundry, $18@$18.50; No. 2 X, Foundry, $17@$17.50; Gray Forge, $16@$16.50; while less popular brands sell 50c. or $1 below these figures, and fancy brands go as much above them.

Scotch Pig.—The situation remains unchanged, and we continue to quote: Coltness, $20; Gartsherrie, $19; Summerlee, $19.75; Dalmellington, $18.50; Langloan, $19.50. Cables to the Metal Exchange to-day quote: Coltness, 46s. 6d.; Summerlee, 45s. 6d.; Langloan, 43s.; Gartsherrie, 43s. 3d.; Glengarnock, 42s.; Dalmellington, 40s. 6d.; Eglinton, 39s. 7d.; Warrants, 39s. 7d.; Middlesboro', No. 3, 29s. 6d. Freights are 5s. nominally.

Bessemer Pig.—A weaker feeling has been shown in Domestic Pig, which we quote at $17.75@$18.25 at the furnace, and Foreign, ex ship, $18.75@$19.

Spiegeleisen.—It is stated that a sale of about 2000 tons has been made. We quote English, $25@$25.25, and German, $25 for 20 per cent. Eighty per cent ferro-manganese is quoted at $62@$65.

Structural Iron and Steel.—Nothing of interest has occurred in this line. We quote Angles, 2@2·10c. delivered; Tees, 2·30@2·45c.; Iron Beams and Channels, 3c. base, for American; Steel Angles, 2·30@2·45c.

Steel Rails.—The market is quiet, but it is said that some heavy orders will soon be placed. We continue to quote $34@$35 at Eastern mills. During the week under review, some 20,000 tons of English rails were sold in London, for railroads in this country, for $38, sail shipment.

Steel Plates.—We quote 2¼@2¾c. for Tank; 3@3¼c. for Boiler and Ship Plates; 3½c. for Flanges; 4@4½c. for Extra Flange and Fire-Box Plate.

Merchant Steel.—Little is doing. Our quotations are: American Tool Steel, 7½@10c.; special qualities, 11@20c.; Crucible Machinery, 4@5c.; Bessemer and Open-Hearth Machinery, 2¼@2½c.

Plate Iron.—Common Tank, 2@2¼c.; Refined, 2¼@2⅝c.; Flange Iron, 3¼@3½c.; Extra Flange, 4@4·25c.

Bar Iron.—The market has been firm and quiet, buyers apparently holding, awaiting developments. Refined we quote at 1·70@1·90c.; Common, 1·60@1·70c. Store prices are ·10@·20c. higher.

Steel Rail Blooms.—In large lots, Rail Blooms are offered at from $24@$24.50.

Old Rails.—The market has been active, with large sales, and in consequence the price has advanced to $20.

Cast-Iron Pipe.—We continue to quote $32.50 per ton for 4-inch pipe; $31.50 for 6-inch; and $28.50 for 48-inch, at the foundry, as about the bottom.

Scrap.—We quote $18@$19 for Wrought, and $13@$14 for Cast.

Rail Fastenings.—We quote Spikes, 2·35@2·45c. a pound delivered, and 1¾@2c. for Angle Fish-Bars.

Philadelphia. August 19.

[From our Special Correspondent.]

Pig-Iron.—More or less discussion is heard over the probable course of the pig-iron market for the next sixty days. The increasing production, which has now reached 122,000 tons a week, has so far been absorbed without threatening any depression in prices. Three or four manufacturers of forge iron have expressed the opinion this week that there will be no more shading of good forge iron; that they have had inquiries for all they will be able to deliver within sixty days; that the consumption will steadily increase; and that, on account of the small stocks in both buyers' and makers' hands, there will be a heavy movement during the next two or three weeks. Forge iron has been selling all the week at about $16, with a little more or less for certain brands according to quality. Sales during the past two or three days have been mostly of the better makes. There is some Southern iron hanging around here waiting for buyers. It would move quickly enough if holders were more anxious to sell. Offers were made to-day for several hundred ton lots for delivery during the next sixty days, but not accepted. Southern furnace managers think that they will get higher prices later on, and give, as their reason, that there is a good deal of Southern pig-iron going into Western markets. They perhaps overestimate the effect of Southern competition in both Eastern and Western markets. The tone here is strong, but cases have been known of ordinary brands of both forge and foundry iron going as low as any prices that have prevailed during the summer. Influences may possibly be working in favor of higher prices, but it is to be doubted. The fact that three or four, or perhaps a half dozen, brands of first-class iron are selling high, goes for little. A good quality of Gray Forge has been had at $16, and a good quality of Foundry at $18@$18.50.

Foreign Material.—A good deal of business has been done in foreign Rail Blooms at $24.50@$25. Bessemer pig is quoted nominally at $19, and Spiegeleisen $25.50, with more or less inquiry, but no business.

Muck-Bars.—Muck-Bars are quoted at $29@$30, but one order has been taken as low as $28.50.

Blooms.—Charcoal Blooms are under a little better inquiry.

Manufactured Iron.—Common iron has been selling at $1.60@$1.65. Two or three mills have booked in an aggregate a large amount of business, and are now in the way of a good deal more. Medium iron is $1.65@$1.70; Refined, $1.70@$1.85. In a general way, there is an improving demand for merchant bars, and the mills are filling up, both in the city and up through the country. There is some little uncertainty yet as to the wages question.

Sheet-Iron.—Card rates are paid for all the sheet-iron that is selling, and one or two mills report a sharp accumulation of orders.

Skelp Iron.—Skelp iron is firm at 1·85@1·95c., with a good amount of business to be placed as soon as the mills are ready for it.

Wrought-Iron Pipe.—The wrought-iron pipe mills are still overcrowded with orders, with plenty of business in sight; discounts firm.

Plate Iron.—Plate iron orders have been booked within a day or two at 2c.; Tank, 2c.

Structural Iron.—Angles are 1·95c.; Beams and Channels, 3c.; business fair.

Steel Rails.—Small lots of steel rails have been sold at as high as $35.50 for fall delivery. There are a good many orders to be had. The lowest quotations are $34.50.

Old Rails.—Several spot lots of old rails have been sold at near-by points at $19@$20.50, and one lot here at $21. There are several inquiries in for from 100 to 500 tons, and the prospective supply is better.

Scrap.—Foreign scrap is quoted at $18.50@$19; Domestic, $19@$21. There is an active yard demand for all excepting the lower grades.

Louisville. August 18.

[Reported by GEORGE H. HULL & Co.]

The market for pig-iron shows great firmness. The greater number of furnaces are not only sold up but are sold so far ahead that they will not book orders, even at outside figures. The demand is increasing and every indication points to an early advance. We quote for cash in round lots as below:

PIG-IRON.

Southern Coke, No. 1 Foundry	$16.00@$17.50
" " No. 2 "	15.00@ 16.50
Hanging Rock Coke, No. 1 Foundry	16.50@ 17.00
" " Charcoal, No. 1 Foundry	18.00@ 19.00
Southern Charcoal, No. 1 Foundry	17.00@ 19.00
Southern Coke, No. 1 Mill, Neutral	14.50@ 15.50
" Charcoal, No 1 Mill	16.50@ 17.00
White and Mottled, different grades	12.00@ 13.00
Southern Car-Wheel, Standard Brands	23.50@ 24.50
Hanging Rock, Cold Blast	23.00@ 25.00
" " Warm Blast	19.00@ 20.00

COAL TRADE REVIEW.

NEW YORK, Friday Evening, August 20.

Statistics.

Production of Coke on line of Pennsylvania RR. for week ended August 14th, and year from January 1st: Tons of 2000 pounds.

	1886. Week.	1886. Year.	1885. Week.	1885. Year.
Alleghany Region.	3,512	113,317	4,058	118,142
West Penn. RR.	2,705	66,791	986	30,139
Southwest Penn. RR	55,345	1,594,934	37,207	1,201,293
Penn. & W. Region	5,280	202,741	6,240	151,521
Monongahela	1,545	81,966	1,514	62,928
Pittsburg Region.	.....	.....	.....	.....
Snow-Shoe	1,069	15,076	543	10,206
Total	69,462	2,074,825	50,548	1,574,229

Production Anthracite Coal for week ended August 14th, and year from January 1st:

Tons of 2240 lbs.	1886. Week.	1886. Year.	1885. Week.	1885. Year.
P. & Read. RR. Co.	276,268	6,633,601	267,464	6,338,021
L. V. RR. Co.	151,594	3,683,231	160,783	3,466,908
D. L. & W. RR. Co.	93,895	2,943,442	122,815	2,594,246
D., & H. Canal Co.	76,291	2,241,636	70,150	2,095,614
Penna. RR.	39,069	1,787,862	68,420	1,805,849
Penna. Coal Co.	37,363	799,200	24,384	735,853
Penna. Canal Co.	15,000	233,673	8,968	205,850
Total	692,480	18,322,645	722,984	17,242,341
Increase	.....	1,080,304	.....	.....
Decrease	30,504	.....	.....	.....

The above table does not include the amount of coal consumed and sold at the mines, which is about six per cent of the whole production.

Production for corresponding period:

1881	16,798,470	1883	18,204,683
1882	17,301,166	1884	17,820,668

Production Bituminous Coal for week ended August 14th, and year from January 1st: Tons of 2000 pounds, unless otherwise designated.

EASTERN AND NORTHERN SHIPMENTS.

	1886. Week.	1886. Year.	1885. Week.	1885. Year.
Phila. & Erie RR.	.....	7,622	23	18,697
*Cumberland, Md.	76,763	1,258,748	57,315	1,654,375
Barclay, Pa.	2,951	119,710	5,428	147,500
*Broad Top, Pa.				
H. & Broad Top RR.	7,760	232,904	1,918	97,655
East Broad Top	.....	.....	.....	.....
Clearfield Region, Pa.				
Snow Shoe	3,223	60,858	1,785	92,958
Karthaus (Keating)	2,513	73,695	2,184	78,475
Tyrone & Clearfield	48,160	1,227,884	45,477	1,819,462
Alleghany Region, Pa.				
Gallitzin & Mountain	6,406	431,619	10,405	318,094
Total	147,776	3,413,040	124,545	4,227,216

* Tons of 2240 lbs.

WESTERN SHIPMENTS.

Pittsburg Region, Pa.				
West Penn RR.	6,741	213,055	2,552	146,000
SouthwestPenn. RR.	1,989	112,247	1,493	60,606
Pennsylvania RR.	4,376	162,235	4,759	133,914
Westmoreland Region, Pa.				
Pennsylvania RR.	34,858	678,909	34,848	704,034
Monongahela Region, Pa.				
Pennsylvania RR.	6,970	236,870	10,308	167,108
Total	54,934	1,403,316	53,960	1,211,662
Grand total	202,710	4,816,356	178,505	5,438,878

Anthracite.

There is a great deal more business doing at the new prices than was generally expected would be the case. In fact, there is very little coal obtainable at old prices. This more harmonious and profitable condition of affairs is largely due to the practical and working element of the trade, the sales-agents.

The outlook for a large fall trade, at very remunerative prices, is as good as it has been for years. There appears to be greater harmony among the companies than has existed for a long time past, This, however, is only what was contemplated months ago, and what the stockholders of the companies have been led to expect. The willful disturbance of these relations by the officers of any of the large companies should be criminal. The least penalty that should be imposed upon them should be instant dismissal, and we should be pleased to join a stockholders' movement to accomplish this end.

During the week, the Pennsylvania Coal Company was the cause of a meeting of the sales-agents. The company had issued a circular giving the following prices at Newburg, from which contractors get, it is said, a commission of 20 cents a ton:

Broken	$3.15	Nut	$3.45
Egg	3.20	Pea	2.20
Stove	3.60		

Of course, there is a difference against Newburg, in delivering alongside in this city, as compared with some other shipping ports; but practical men in the trade do not consider the circular a fair one. Furthermore, if it be true, as stated, that the contractors of this company get a commission of 20 cents a ton, it is not in accordance with the general understanding, and a change should be demanded by the other companies, as 15 cents is a sufficient commission.

When things are not going rightly, there is no company so anxious for a coal combination, or so confident that the companies can work harmoniously together, as this one; but whenever an arrangement is completed, and an effort is made to establish regular prices, this company appears in some petty way as a disturbing element.

As the present combination is expected to continue

until next April, it would be well for the sales-agents to call a special meeting for the purpose of determining the Pennsylvania Coal Company's position, and to urge upon it the necessity of avoiding unnecessary committals that are likely to conflict with future actions of the sales-agents. If this company's coal is inferior in quality, let it be ascertained what allowance should be made upon that score, and at the same time determine what allowance should be made on shipments from Newburg to this city. While investigating these matters, it would be well to provide against shipments from Weehawken at Newburg prices.

To discover, after the announcement that prices have been advanced has been made, that one of the companies has issued a circular apparently lower than the others, is a very wet blanket, and does much to make the public believe that there is no stability in the combination.

Of course, the decision of the sales-agents, after considering the above-mentioned circular, was, that there was no cause for action in the present instance.

Mr. John H. Jones, official accountant, furnishes the following statement of anthracite coal tonnage for the month of July, 1886, compared with the same period last year. This statement includes the entire production of anthracite coal, excepting that consumed by employés, and for steam and heating purposes about the mines:

COMPANIES.	July, 1886.	July, 1885.	Difference.
Phila. & Reading RR...	949,568	1,057,661	D. 108,093
Lehigh Valley RR.....	437,828	562,482	D. 124,654
Del., Lack. & West. RR.	320,123	455,110	D. 134,987
Del. & Hud. Canal Co..	266,049	278,187	D. 12,136
Pennsylvania RR.....	288,834	261,983	I. 26,851
Pennsylvania Coal Co.	99,852	136,145	D. 36,293
N. Y., L. E. & W. RR...	71,094	49,438	I. 21,656
Total	2,433,348	2,801,006	D. 367,658

COMPANIES.	For Year 1886.	For Year 1885.	Difference.
Phila. & Reading RR..	6,045,571	5,785,454	I. 260,117
Lehigh Valley RR.....	3,249,798	2,918,038	I. 331,760
Del., Lack. & West. RR	2,737,788	2,382,988	I. 354,800
Del. & Hud. Canal Co.	1,935,254	1,589,153	I. 346,101
Pennsylvania RR	1,897,904	1,812,489	I. 85,415
Pennsylvania Coal Co.	682,388	704,966	D. 22,578
N. Y., L. E. & W RR..	408,021	309, 40	I. 98,781
Total..... ..	16,956,724	15,502,328	I. 1,454,396

The stock of coal on hand at tide-water shipping points, July 31st, 1886, was 705,480 tons; on June 30th, 1886, 700,736 tons; increase, 4744 tons.

A favorable feature of the above statement is, that the stock of coal is not larger; but a more favorable feature is, that the companies kept within their allotments. At the same time, they demonstrated that the previous overproduction was not justified, as the demand for furnace coal was quite as large in previous months as it was in July.

The boatmen's strike has been a very disturbing element during the week, preventing the movement of a large amount of coal. Negotiations are still pending which, it is believed, may soon result in a settlement.

We quote net prices for ordinary free burning coals f.o.b., as follows:

	Week ended— Aug. 20.	Aug. 13.
Lump..	$3.15@ .. .	$3.15@ ....
Steamboat	3.15@	3.15@
Broken, ...	3.15@	3.00@$3.15
Egg	3.25@ . ..	3.15@ 3.25
Stove	3.60@	3.35@ 3.60
Chestnut.....	3.15@	3.00@ 3.15
Pea	2.00@	1.85@ 2.00
Buckwheat.....	1.40@ $1.65	1.40@ 1.65
Dust	1.25@ 1.40	1.25@ ....

From all present indications, we think it wise to purchase freely for the wants of the next sixty days, at least.

The output for September will be 2,750,000 tons. This is very conservative, and is another indication that the companies mean business, and are determined to have better prices than have ruled in the past.

THE PHILADELPHIA & READING COAL AND IRON COMPANY,

GENERAL OFFICE, 227 SOUTH FOURTH STREET, PHILADELPHIA, August 13, 1886.

On and after this date, and until further notice, the following will be the prices for this company's coal, delivered on board vessels at Port Richmond, Philadelphia, Pa. (for shipment beyond the Capes of the Delaware), and Elizabethport, N. J., subject to our printed conditions of sale:

KINDS OF COAL.	Port Richmond. Egg.	Stove.	Chestnut.	Elizabethport, N. J. Egg.	Stove.	Chestnut.
	$	$	$	$	$	$
Hard white-ash.....	3.40	3.60	3.10	3.60	3.80	3.30
Free-burning white-ash	3.20	3.60	3.10	3.40	3.80	3.30
North Franklin white-ash...	3.60	3.60	3.10	3.80	3.80	3.30
Schuylkill red-ash	3.50	4.00	3.25	3.65	4.15	3.40
Shamokin white-ash.. ...	3.50	4.00	3.10	3.65	4.15	3.30
Shamokin red-ash.....	3.65	4.25	3.25	3.80	4.40	3.40
Lorberry.....	3.65	4.25	3.35	3.80	4.40	3.50
Lykens Valley.....	4.65	4.85	4.00	4.85	5.00	4.25

Port Richmond: Hard White-Ash, Lump, $4; Steamboat, $4; Broken, $3.30; Pea, $1.90. Free-burning White-Ash, Broken, $3.10; Pea, $1.90. Lykens Valley, Broken, $4. Elizabethport: Hard White-Ash, Lump, $4.25; Steamboat, $4.25; Broken, $3.50; Pea, $2.10. Free-burning White-Ash, Broken, $3.30; Pea, $2.10. Lykens Valley, Broken, $4.15.

Bituminous.

The movement of coal in this harbor has been greatly disturbed by the boatmen's strike. The Berwind-White Coal Mining Company has sent vessels from Baltimore and boats from Philadelphia, loaded with coal to meet its requirements at this port. Cars are still very scarce on the Pennsylvania Railroad, and coal quite scarce, yet from some cause prices are still low and very irregular.

Buffalo. August 19.

[From our Special Correspondent.]

The only talk going on this week is about the numerous conventions held here. Included among them is the American Association for the Advancement of Science, which is largely attended.

The anthracite coal trade presents no new features. The business, as far as reported, is confined almost entirely to the requirements of families. The large contracts have all been allotted and are filling.

The bituminous business jogs along without any marked improvement in demand or quotations. Manufacturers are busy, and the trading done for fuel for tugs and propellers quite large.

The coke trade continues satisfactory, without variation in prices or demand. The ovens are reported to be all working on full-time, with every prospect of a continuance of this desirable business energy. The price is $1.50 a ton at the ovens for furnace coke.

The Joint Western Anthracite Coal Committee will meet in Rochester, New York, on the 26th of August. It is probable that another advance in retail prices will be announced, although conservative dealers think it better to leave the schedule as it is, as a fair living profit is now assured them. The local associations here and elsewhere continue to work harmoniously. Most of the usual family contracts are filling at the lowest rates of the season.

The following is from a special correspondent of a local newspaper:

"LOCKPORT, N. Y., August 15.

"The Lockport Coal Exchange is just now occupying a good share of public attention by reason of the combination entered into by its members to raise the price of coal. Not satisfied with a fair profit on that necessary commodity, they have undertaken to say to the consumer, 'You must pay us a large profit or dispense with its use,' knowing, at the same time, that to do so is practically an impossibility. Heretofore, the dealers have been satisfied with a profit of one dollar a ton added to the difference of weight between the gross ton, the weight at which it is bought, and the 2000 pounds that constitute a ton as retailed to the buyer. There is strong talk on the part of a good many influential people of bringing the matter to the attention of the next grand jury, and if possible, having an indictment found against the members of the combination for conspiracy."

Coal freights have been and are strong; vessels at the end of last week were not plentful, and from the advanced rates paid for lumber, ore, etc., it is probable that higher figures will prevail ere long. Vessel men secured an advance of 10c. per ton to Chicago, Milwaukee, and some other points last Friday. Yesterday, there were vessels, but no coal; so that quite a small fleet left light for the Upper lake ports. Today, very quiet, and prices sustained for the few charters made.

The coal shipments by lake westward from August 12th to 18th, both days inclusive, aggregated 44,530 net tons; namely, 14,810 to Chicago, 11,090 to Milwaukee, 7230 to Duluth, 1560 to Toledo, 800 to Marquette, 1200 to Detroit, 100 to Bay City, 1000 to Hancock, 1400 to Superior, 750 to Green Bay, 600 to Sandusky, 1200 to Racine, 700 to Evanston, 390 to Oscoda, 500 to Lake Linden, and 550 to Owen Sound; making total for season, 782,720 net tons. The engagements and rates reported were, per net ton, as follows: 60@70c. to Chicago, Milwaukee, and Green Bay; 75c. to Evanston, 70c. to Racine, 70c. to Sheboygan; 20c. to Detroit, Sandusky, and Toledo; 40c. to Owen Sound, 50c. to Marquette, 45c. to Duluth and Superior, and 70c. to Oscoda.

The receipts of coal at this port by canal for the second week in August were 2999 tons; the shipments for the same period, 595 tons.

The only charters by canal reported during the past week were as follows: 2 loads coal to Troy, $1 per gross ton, free in and out; and 1 load to Syracuse, 60c. gross, free in and out. The nominal rate to Albany is $1.25; and to New York, $1.50 per net ton; captain to pay loading and unloading.

Coal freights from Charlotte, Lake Ontario, to Chicago and Milwaukee have advanced to $1.15 per gross ton. Tonnage is scarce and a further rise expected.

Please answer this conundrum in your next issue: What will be the output for September?

Boston. August 19.

[From our Special Correspondent.]

We have had the advance, sure enough, and the quotations of all the companies bear witness to the fact. Agents are asking $3.75 f.o.b. at New York for Stove, $3.40 for Egg, $3.30 for Broken, and $3.30 for Nut. We hear of no cutting. The result might be different if retailers were anxious to depress the market, but they feel quite the reverse. Their active fall trade is coming on, and they desire to enter upon it at as good prices as possible. Every thing is favorable to the maintenance of the advance, as far as exterior conditions go. The success of it lies with the companies themselves. If the companies will only keep production down, they will encounter no great pressure to break prices, judging by the temper of the trade at this port. Dealers are not in want of coal to any extent, and can not be expected to buy ahead of their needs on the strength of the companies' promises; but there will be a good movement when the strength of the situation becomes reasonably apparent. Agents profess to be very confident of maintaining the advance, and talk of still higher figures, say $4 for Stove coal before December 1st. As yet, however, no considerable amount of coal has been sold at over $3.25@$3.40 for Stove or $3 for Broken and Egg. Stove coal continues to be more abundant than the other sizes.

The doings of the bituminous branch of the market are very quiet. Coal can be had at $2.10 f.o.b., and perhaps at $2 if the market was scoured over. The gas-coal trade is virtually over, the purchases having been made at about $3 f.o.b.

A firmer tone is noticeable in freights. A local cause has stiffened rates somewhat in case of vessels going through bridges. Newly adopted regulations compel all vessels to be worked through railroad bridge draws at certain hours of the day and at no other times, and considerable demurrage is thereby caused.

We quote rates exclusive of discharging:

New York, 80@90c.; Philadelphia, $1@$1.05; Baltimore, $1.10@$1.15; Newport News and Norfolk, $1.05@$1.10; Richmond, $1.10@$1.15; Cape Breton, $1.85@$2; Bay of Fundy, $1.60.

There is little more movement at retail, but trade is still very dull.

A little better movement is noted among retailers at unchanged figures.

FINANCIAL.

Mining Stocks.

NEW YORK, Friday Evening, August 20.

Nothing of importance has occurred in the mining market, which is still in the same drowsy condition it has been in for weeks past. Prices hold their own with but little change.

Plymouth Consolidated has again come forward with a $25,000 dividend, making to date $1,750,000. The stock is quiet at $15.25. The Bodies have been quite active, Bulwer showing the largest business at from 89@97c. Bodie, at from $2.40@$2.65. Mono

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par value	Assessments. Total levied to date.	Assessments. Date and amount per share of last.			Dividends. Total paid to date.	Dividends. Date and amount per share of last.		
1	Adams, s. L	Colo.	$1,500,000	150,000	$10	*				$450,000	Aug.	1886	.10
2	Alice. s. c	Mont	10,000,000	400,000	25	*				725,000	Jun.	1886	.06¼
3	Amie Con., s. L	Colo.	5,000,000	500,000	10	*				330,000	Oct.	1883	.05
4	Amy & Silversmith, s.	Mon.		311,419						68,284	Aug.	1886	.10
5	Atlantic, c	Mich	1,000,000	40,000	25	$280,000	Apl.	1875	$1.00	320,000	Jan.	1886	$1.00
6	Argenta, s	Nev.	10,000,000	100,000	100	295,000	July	1885	.10	40,000	Feb.	1880	.20
7	Barbee & Walker, s.	Utah	1,000,000	100,000	10	*				60,000	No	1880	.10
8	Bassick, G. S	Colo.	10,000,000	100,000	100	*				400,000	Mar.	1884	1.00
9	Belle Isle, s	Nev.	10,000,000	100,000	100	140,000	May	1886	.10	300,000	Dec.	1879	.25
10	Belcher, G. S	Nev.	10,430,000	104,300	100	2,217,335	ec	1885	.30	15,397,000	Apl.	1876	1.00
11	Bellevue Idaho, S. L.	Idah.	1,250,000	125,000	10	26,250	Dec.	1881	.10	112,500	July	1886	.10
12	Big B'nd Hydraulic, G	Dak.	1,000,000	200,000	5	*				186,000	Aug.	1886	.03
13	Black Bear, G	Cal.	3,000,000	30,000	100	22,500	Dec.	1881	2	895,000	May	1883	.20
14	Bodie Con., G. S	Cal.	10,000,000	100,000	100	324,990	Jun.	1886	.50	1,602,572	Apl.	1885	.50
15	Bonanza Developm't	C & M	3,000,000	300,000	10					135,000	Oct.	1882	.15
16	Bonanza K'g, Cons. S.	Cal.	1,000,00	100,000	10	*				185,000	Feb.	1885	.10
17	Boston & Mont, G	Mont	2,000,000	200,000	10	*				520,000	Jun	1886	.15
18	Breece, S	Colo.	5,000,000	200,000	25	*				2,000	Feb.	1880	.01
19	Brooklyn Lead, L. S	Utah	500,000	50,000	10					99,500	Aug.	1886	.05
20	Bulw r, G	Cal	1,000,000	100,000	100	40,000	Oct.	1885	20	175,000	Jan.	1884	.10
21	Caledonia, G	Dak	1,000,000	100,000	100	505 000	May	1885	.15	40,000	Feb.	1886	.10
22	Calumet & Hecla, C	Mich	2,500,000	100,00	25	1,200,000				27,850,000	Jun.	1886	5.00
23	Carbonate Hill, S. L.	Colo.	2,000,000	200,00	10	*				80,000	Apl.	1884	.05
24	Caribou Con., S	Colo.	1,500,000	150,000	10	*				50,000	Mch	1880	.10
25	Castle Creek, G	Idah.	100 000	100,000	1					51,000	Oct.	1883	.03
26	Catalpa, S. L	Colo.	3,000,000	300,000	10	*				270,000	May.	1884	.10
27	Central, C	Mich	500,000	20,000	25	100,000	Sept	1861	.06	1,780,000	Jan.	1886	2.00
28	Christy, S	Utah	10,000,000	100,000	100					10,000	Jun.	1885	.10
29	Chrysolite. S. L	Colo	10,000,000	200,000	50	*				1,650,000	Dec.	1884	.25
30	Colorado Central, S. L	Colo.	2,750,000	275,000	10	*				130,000	Aug	1886	.10
31	Cons Cal & Va., G. S.	Nev.	21,600,000	216,000	100	108,000	Jan.	1885	.20	64,800	Feb.	1886	.30
32	Con. Gold Mining, G.	Ga	500,000	100,000	5	*				108,000	Nov.	1883	02
33	Contention, S	Ariz.	12,500,000	250,000	50					42,587,000	Dec.	1884	.25
34	Crescent, S. L. G	Utah	15,000,000	600,000	25	‡				210,000	Aug.	1886	05
35	Crown Point, G. S	Nev.	10,000,000	100,000	100	2,675,000	Feb.	1882	.25	11,588,000	Jan.	1875	2.00
36	Deadwood-Terra, G	Dak.	5,000,000	200,000	25	*				$900,000	Jan.	1883	.10
37	Derbec B. Grav., G. S.	Cal.	10,000,000	10 ,000	100	90,000	Dec.	1881	.10	140,000	Jun.	1886	.10
38	Dunkin, S. L	Colo.	5,000,000	200 000	25	*				220,000	Sept	1884	05
39	Elkhorn, G. S	Mont	1,000,000	100,000	10	50,000	July	1883	.50	130,000	July	1886	.50
40	Eureka Con., G. S. L.	Nev.	5,000,000	50,000	100	500,000	July	1886	1.00	4,817,500	July	1882	.25
41	Evening Star, S. L	Colo.	500,000	30,000	10	*				1,400,000	Nov	1883	.50
42	Excelsior, G	Cal.	10,000,000	100,000	100	563,000	Sept	1885	1.00	875,000	Oct.	1880	.25
43	Father de Smet, G.	Dak	10,000,000	100 000	100	200,000	Nov	1878	1.00	1,125,000	Dec.	1885	.20
44	Franklin, C	Mich	1,000,000	40,000	25	220,000	Jun	1871		520,000	Jun.	1886	1.00
45	Freeland, G. S. C	Colo	5,000,000	200,000	25	*				190,500	July	1886	.10
46	Fresno Enterprise, G	Cal.	5,000,000	100,000	50			Mch	1883	110,000	July	1882	.10
47	Gould & Curry, G. S.	Nev.	10,800,000	108,000	100	4,001,000	Jun	1886	.50	3,826,000	Oct.	1877	10.00
48	Grand Central, S	Ariz.	1,000,000	100,000	10					625,000	Dec.	1882	.25
49	Grand Prize, S	Nev..	10,000,000	100,000	100	570, 0	Apl.	1886	.50	495,000	Mar.	1884	.25
50	Granite, S	Colo.	125,000	125,000	1					6,250	May	1883	.01
51	Granite Mountain, S.	Mont	10,000,000	400,000	25					1,300,000	Aug.	1886	.25
52	Green Mountain, G	Cal.	1,250,000	125,000	10	*				212,000	Nov.	1881	.07½
53	Hale & Norcross, G. S	Nev..	11,200,000	112,000	100	4,930,000	July	1886	.50	1,598,000	Apl	1871	5.00
54	Hall-Anderson, G	N. S.	150,000	150,000	1					7,000	Jan.	1882	05
55	Hecla Con., S. G. L. C	Mont	1,500,000	30,000	50					1,032,000	July	1886	.50
56	Hel'a Mg & Red, G. S. L	Mont	3,315,000	663,000	5	*				197,97	July	1886	.06
57	Holmes, S	Nev..	10,000,000	100,000	100	300,000	Sept	1885	10	75,000	Apl.	1886	.25
58	Holyoke, G	Idah.	200,000	200,000	1					27,000	Feb.	1883	.10
59	Homestake, G	Dak.	12,500,000	125,000	100	200,000	July	1879	1.00	3,518,750	Aug	1886	.40
60	Honorine, S. L	Utah	5 0,000	250,000	2	25,000	Jun.	1883		62,500	Nov.	1885	.05
61	Hope, S	Mont	400,000	8,000	50	*				158,252	Oct.	1884	1.50
62	Horn-Silver, S. L	Utah	10,000,000	400,000	25	*				4,000,000	Nov.	1884	.50
63	Idaho, G	Cal.	310,000	3,100	100					3,750,000	Jun.	1886	7.50
64	Ideal, S. L	Colo.	1,500,000	150,000	10					7,500	July	1886	.05
65	Independence, S	Nev..	1,000,000	100,000	100	320,000	Aug.	1885	.20	225,000	Sept	1879	.25
66	Indian Queen, S	Nev..	250,000	125,000	2					368,750	July	1883	03
67	Invo, G	Cal.	500,000	100,000	5	*				45,000	Apl.	1882	.05
68	Iron Hill, S	Dak.	2,500,000	250,000	50	82,500	Oct.	1885		87,500	July	1886	.05
69	Iron-Silver, S. L	Colo	10,000,000	500,000	50	*				1,700,000	July	1886	20
70	Jackson, G. S	Nev.	5,000,000	50,000	100	10,000	Nov.	1880	.20	40,000	Jun.	1885	.10
71	Jocuistita, S	Mex.	2,500,000	250,000	10					1,20 ,000	Feb.	1885	.50
72	Kentuck	Nev..	3,000, 00	30,000	100	342,000	Nov	1881	.30	1,350,000	July	1884	.10
73	La Plata, S. L	Colo.	2,00 ,000	20,000	10	*				610,000	Sept	1882	.30
74	Leadville Cons., S. L	Colo	4,000,000	400,000	10	*				390,000	May	1886	.05
75	Lexington, G. S	Mont	4,000,000	40,000	100	*				565,000	Jan	1885	2.00
76	Little Chief, S. L	Colo	10,000,00	2 0,000	50	*				780,000	Mch	1885	.10
77	Little Pittsburg, S. L	Colo.	20,000,000	200,000	100	*				1,050,000	Mch.	1880	.50
78	Manhattan, S	Nev.	5,000,000	50,000	100	150,000	July	1879	1.00	437,500	Feb	1886	.25
79	Marguerite, G	Cal.	500, 00	25,000	20					18.750	Oct.	1882	.25
80	Marion Bullion, G	N. C	500,000							15,000	Jan.	1886	
81	Martin White, S	Nev.	10,000,000	100,000	100	1,150,000	Mar.	1886	25	90,000	July	1879	.30
82	Minnesota, C	Mich	1,000,000	40,000	25	420,000	Apl.	1886	1 00	1,826,000	Mar.	1876	
83	Mono, G	Colo.	5,000,000	5 ,000	100	560,000	Jun.	1885	.50	12,500	Mar.	1886	.25
84	Montana, Lt., G. S	Mont	3,300,00	330,000	10	*				630,300	July	1886	.62
85	Morning Star, S. L	Colo.	1,000,000	100,000	10					575,000	July	1886	.25
86	Multon, S. G	Mont	2,000,000	400,000	5	*				200,000	Aug	1886	.07½
87	Mount Pleasant, G	Cal.	150,000	150,000	1	*				105.000	Mar.	1884	.10
88	Mt. Diablo, S	Nev	5,000,000	50,000	100	137,500	Jun.	1880	2.00	80,000	July	1885	.20
89	Napa, Q	Cal.	700,000	100,000	7					200,000	Jan.	1884	.10
90	Navajo, G. S	Nev..	10,000,000	100,000	100	395,000	Mar.	1886	.25	325,000	Feb.	1885	.25
91	N. Hoover Hill, G. S.	N. C	300,000	120,000	2½	*				30,000	Dec.	1885	.06½
92	New York Hill, G	Cal.	5,000,000	50,000	100	62,500	Oct	1885	.15	215,000	Aug.	1882	.10
93	Northern Belle, S	Nev..	5,0 0,000	50,000	100	425,000	Jan	1884	8.30	2,400,000	Apl.	1883	50
94	North Belle Isle, S	Nev..	10,000,000	100,000	100	150,000	Mar	1886	.20	3 ,000	Aug.	1881	.15
95	Ontario, S. L	Utah	15,000,000	150,000	100					7,625,000	Aug.	1886	.50
96	Ophir, G. S	Nev..	10,000,000	100,000	10	3,957,800	Jun.	1886	.25	1,595,000	July	1882	1.00
97	Original, S. C	Mont	1,500,000	60,000	25	*				114.000	Oct.	1884	.05
98	Osceola, C	Mich	1,250,000	50,000	25	480,000	Apl.	1876	1.60	972,500	Sept	1884	25
99	Oxford, G	N. S.	125,000	125,000	1	*				34,500	Oct.	1885	.02
100	Paradise Valley, G. S	Nev.	10,000,000	100,000	100	47,000	Mar.	1882	.15	85,000	July	1886	.25
101	Pleasant Valley, G. S.	Cal.	10,000,00	100,000	100	40,000	Mar.	1884	.10	30,000	Dec.	1882	.05
102	Plutus, G. S. C. L	Colo.	2,000,000	200,000	10	*				20.0.0	Feb	1886	.10
103	Plymouth Con., G	Cal.	5,000,000	100,000	50	*				1,750 00	Sept.	1883	.25
104	Prussian, S. L	Colo.	1,500,000	150,000	10					132,000	Jan	1883	.10
105	Quick-diver, pref., Q	Cal.	4,300,000	43,000	100					785,150	Aug.	1886	1.25
106	" com., Q	Cal	5,700,000	57,000	100					151,000	July	1882	.40
107	Quincy, C	Mich	1,000,000	40,000	25	200,000	Dec.	1862		4,410,000	July	1886	2.00
108	Richmond, S. L	Nev..	1,350,000	54,000	25	*				4,177,587	May	1886	1.25
109	Ridge, C	Mich.	500,000	20,000	25	220,000	Mar	1886	.50	10 ,000	Feb.	1880	.50
110	Rising Sun, S	Dak.	750,000	150,000	5					52,000	May	1881	.07½
111	Robinson Con., S. L	Colo.	10,000,000	200,000	50	*				585,000	Mar.	1886	.05
112	Robert E. Lee, S. L	Colo.	10,000,000	500,000	20					100,000	Dec.	1882	.10
113	Rooks, G	Vt.	500,000	50,000	10	*				61,000	Apr	1885	.30
114	San Francisco, C	Cal.	5,000,000	50,000	100	45,000	Sept	1880	.50	20,000	Feb.	1884	.05
115	Savage, S	Nev..	11,200,000	112,000	100	6,156,000	Jun.	1886	.50	4,460,000	July	1869	3.00
116	Security L Mg, Mfg.	Colo.	1,000,000	100,000	10	*				50,000	July	1884	
117	Shoshone, G	Idah.	150,000	150,000	1					7,500	Apl.	1883	.01
118	Sierra Buttes, G	Cal.	225,000	22,500	10					1,430,639	Apl.	1886	.25
119	Sierra Grande, S	N. M.	2,500,000	500,000	5					860,000	Sept	1884	.25
120	Sierra Nevada, G. S.	Nev..	10,000,000	100,000	100	5,947,698	May	1886	.25	102,000	Jan.	1871	1.00
121	Silver Cord, G. S. L	Colo.	5,000,00	500,000	10					225,000	Nov.	1883	.25
122	Silver King, S	Ariz.	10,000,00	100,000	100					1,750,000	Aug.	1886	.25
123	Silverton, G. S. L	Colo.	2,000,000	200,000	10	*				61,000	Aug.	1886	.02
124	Small Hopes Cons., S	Colo.	5,000,000	250,000	20	*				2,225,000	July	1886	.50
125	Smuggler, S. L	Colo.	600,000	60,000	10					66,700	Aug.	1883	.25
126	Socorro, C	N. M.	250.000	2,500	100					4,000	Mch	1882	.00¾
127	South Yuba, G	Cal.	2,000,000	40, 00	50	*				150,000	Oct.	1881	.75
128	Spring Valley, G	Cal.	200,000	2 ,000	1	*				50,0 0	Jan.	1881	.25
129	Standard, G. S	Cal.	10 000,000	100,0 0	100	25,000	Oct.	1884	.25	4,425,000	Mar.	1884	.25
130	Stormont, S	Utah	500,000	0 ,00	1	*				155,000	Nov.	1881	.05
131	St. Joseph, L	Mo..	1,100,000	110,000	10	*				562,000	July	1886	.60
132	Syndicate, G	Cal..	10,000,000	100,0 0	100	33,729	July	1882	.15	48,308	Sept	1885	.10
133	Tip Top, S	Ariz	10,000,000	100,0 0	100	250,000	Sept	1883	.25	100,000	Nov.	1881	.2
134	Tombstone, G. S. L	Ariz	12,500,000	50 ,000	25	*				1,250,000	Apl.	1882	.10
135	True Fissure, G. S. L	Utah	1,500,000	15 ,000	10	*				75,000	Jun.	1883	.15
136	United Verde, C	Ariz.	3,000,000	300,000	10	*				97,500	Feb.	1884	.20
137	Valencia, M	N. H.	150,000	1,500	100	*				41,25	Apl	1886	2.50
138	Vizina, S	Ariz.	5,000,000	200,000	25	*				140,000	Apl.	1882	.10
139	Yankee Girl	Colo.	2,500,000	250,000	10					1,012,500	Aug.	1886	10
140	Yellow Jacket, G. S	Nev..	12,000,00	12 ,000	100	5,448,000	Dec.	1885	.75	2,184,000	Aug.	1871	1 50

NON-DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Value.	Assessments. Total levied to date.	Assessments. Date and amount per share of last.		
1	Agassiz Cons., S. L	Colo.	$2,500,000	50,000	$50	*			
2	Albion, S. L	Nev..	15,000,000	150,000	100	$577,000	July	1883	.50
3	Allouez, C	Mich	2,000,000	80,000	25	240,000	Feb.	1884	.50
4	Alpha Con., G. S.	Nev..	3,000,000	30,000	100	430,000	Mar	1886	.50
5	Alta, S	Nev..	10,080,000	100,800	100	1,951,400	Feb.	1886	25
6	American Flag, S	Colo	1,250,000	125,000	10	300,000	Jun.	1877	.25
7	Aspen Mg. & S., S. L	Colo	2,000,000	200,000	10				
8	Barcelona, G	Nev..	5,000,000	200,000	25	*			
9	Battle Creek, G	Dak.	5,000,000	200,000	25				
10	Bear Creek	Cal..	300,000	300,000	1				
11	Bechtel Con., G	Cal..	10,000,000	100,000	100	173,500	n.	1883	.10
12	Belvidere	Cal..		90,000		92,000	b.	1882	.15
13	Belmont, S	Nev.	5,000,000	50,000	100	735,000	Apl.	18 6	.10
14	Best & Belcher, G. S	Nev.	10,080,000	100,800	100	1,698,190	Jun.	1886	.50
15	Big Pittsburg, S. L	Colo.	20,000,000	200,000	100	*			
16	Black Jack, G	Cal..	250,000	100,000	2½				
17	Bonanza Chief	Mon	1,000,000	1,000,000	1	*			
18	Bondholder	Colo	500,000	200,000	2½				
19	Boston Con., G	Cal..	10,000,000	100,000	100	170,000	Nov	1883	.25
20	Bradshaw, S	Ariz	2,250,000	225,000	10				
21	Buckeye Common	Colo.	2,000,000	400,000	5	*			
22	Bull Domingo, S. L	Colo.	10,000,000	200,000	50	*			
23	Bullion, G. S	Nev	10,000,000	100,000	100	4,570,000	July	1885	.25
24	Bye and Bye	Ariz.	1,000,000	100,000	10	*			
25	Calaveras, G	Cal..	500,000	500,000	1	*			
26	Catskill, S	Nev..	1,500,000	300,000	5				
27	Central Arizona, S.	Ariz	10,000,000	100,000	100				
28	Cen Contin'l, G. S. L	C. & A	2,000,000	200,000	10	*			
29	Cherokee, G	Cal..	1,500,000	150,000	10				
30	Chollar, S	Nev..	11,200,0 0	112,000	100	984,000	May	1886	.50
31	Climax, S. L	Colo.	2,000,000	200,000	10	*			
32	Colorado No. 2, S. L	Colo.	100,000	10,000	10				
33	Con. Imperial, G. S	Nev..	50,000,000	500,000	100	1,100,000	Aug.	1886	10
34	Con. Pacific, G	Cal..	6,000 000	6 ,000	100	174,000	Feb.	1886	.15
35	Cons Silver, S	Mo..	2,500,000	250,000	10				
36	**Cop. Queen Cons, C.	Ariz	1,400 00	140,000	10				
37	Courtlandt	Colo	500,000	50,000	10				
38	Crescent, S. L	Colo.	3,000,000	300,000	10	*			
39	Crocker, S	Ariz.	10,000,000	100,000	100	65,000	May	1886	.20
40	Crowell, G	N. C	500,000	500,000	1				
41	Dahlonega, G	Ga..	250,0 0	250,000	1	*			
42	Dandy, S	Colo.	5,000,000	500,000	10				
43	Daruanelles, G	Cal..	1,000,000	100,000	10				
44	Decatur, S	Colo.	1,500,000	300,000	5	*			
45	Denver City, S. L	Colo.	5,000,0 0	500,000	10	*			
46	Denver Gold	Colo	300,000	60,000	5				
47	Deseret, G S	Utah	500,000	50,000	10	*			
48	Dunderberg, S	Colo	1,500,000	150,000	10	*			
49	Durango, G	Colo	500,000	500,000	1	*			
50	Durango T	Mex	120,000	1,200	100				
51	Eastern Dev. Co., Lt	N. S.	1,500,000	150,000	10	990,000	Mar.	1886	1.00
52	Elko Con., S	Nev..					Mar	1884	.15
53	Empire Lt., G	Mon.	500,000	100,000	5				
54	Empire, S	Utah	10,000,000	100,000	100				
55	Enterprise, S. L	Colo.	800,000	80,000	10	*			
56	Eureka Tunnel, S. L	Nev..	10,000,000	100,000	100	*			
57	Exchequer	Nev.	10,000,000	100,000	100	840,000	Aug	1885	.20
58	Garfield, Lt., G. S	Nev.	500,000	100,000	5	*			
59	Gold Placer, G	Colo.	5,000,000	200,000	25	*			
60	Goodshaw, G	Cal..	10,000,000	100,000	100	229,314	Dec.	1885	.25
61	Grand Belt, C	Tex.	12,000,000	120,000	100	*			
62	Grand Duke	C lo.	800,000	80,000	10				
63	Gregory-Bobtail, G	Colo.	550,000	550,000	1				
64	Gregory Con., G	Mon.	3,000,000	300,000	10	*			
65	Harlem M. & M. Co, G.	Cal..	1,000,000	200,000	5				
66	Head Cent. & Tr. S. G	Ariz.	10,000,000	100,000	100				
67	Hidalgo, S	Mex.	200,000	20,000	10				
68	Highland, C	Mich	500,000	25,000	25				
69	Hortense, S	Colo.	2,000,000	20 ,000	10				
70	Iroquois, C	Mich	1,250,000	50, 00	25				
71	J. D. Reymert	Ariz	10,000,000	100,000	100	*			
72	Julia Cons., G. S	Nev..	11,000,0 0	110,000	100	1,438,000	Nov	1885	.10
73	Kearsarge, C	Mich	1,250,000	50,000	25	100,000	Apl.	1886	5.00
74	Lacrosse, G	Colo.	1 0 ,00	100,000	10	*			
75	Lee Basin, S. L	Colo.	5 0,000	500,000	10	*	Sept	1882	.25
76	Leviathan, S	Nev..	10,000,000	100,000	100	380,000			
77	Lucerne, S	Colo.	5,000,000	500,000	10	*	Jan.	1885	.10
78	Mammoth Bar, G	Cal..	10,000,000	100,000	100	50,000	Dec.	1881	
79	Mariposa Pref., G	Cal..	5,000,000	50,000	100	1,687,500	Feb.	1883	.25
80	" common, G	Cal..	10,000,000	100,000	100	1,975,000	Dec.	1881	.20
81	May Belle, G	Cal..	10,000,000	100,000	100	84,000	Mar	1884	.15
82	Mayflower, S	Nev..	10,0 0,000	100,000	100	90,000	Feb	1886	.25
83	Mexican, G. S	Nev	10,0 0,000	100,800	100	2,565,760	Jun.	1886	.25
84	Mine & Starr, S. L	Colo	1,000,000	200,000	5				
85	Miner Boy, G. S. L	Colo.	5,0 0,000	500,000	10	*			
86	Miller	Nev	5,000,000	200,000	25				
87	Moose Silver, S	Colo.	3,000,000	300,000	10	*			
88	New Pittsburg, S. L	Colo	2,000,000	200,000	10	*			
89	North Standard, G	Cal..	10,000,000	100,0 0	100	20,000	Nov		
90	Noonday	Cal..	600,000	60,000	10	208,000	Dec.	1881	.10
91	Old Dominion, C	Ariz.	3,000,000	300,000	10				
92	Oriental	Nev	2,000,000	200,000	10				
93	Oriental & Miller, S	Nev..	10,000,000	400,000	25				
94	Overman, G. S	Nev..	11,520,000	115,200	100	3,702,320	July	1886	.15
95	Parrott, G	Mon.	1,800,000	180,000	10				
96	Park, S	Utah	2,000,000	200,000	10				
97	Peer, S	Ariz.	10,0 0,000	100,000	100	125,000	Apl.	1886	.10
98	Peeriess, S	Ariz.	10,000,000	100,000	100	275,000	May	1886	.50
99	Potosi	Nev..	10,200,0 0	112,000	100	1,044,800	Jun.	1886	.30
100	Quin y	Colo.	3,000,000	300,000	10				
101	Rappahannock, G. S.	Va	250,000	250,000	1	*			
102	Red Elephant, S	Colo.	500,000	1,000	1	*			
103	Rollins, G. S	Colo.	5,000,000	200,000	25	*			
104	Ropes, G. S	Mich	2,000,000	80,000	25	63,200	Mar	1886	.10
105	S. P. & Canon del A. C.	N. M.	10,000,000	400,000	25	*			
106	Sheridan	N. M.	2,000,000	200,000	10				
107	Silver Cliff, S	Colo.	5,000,000	400,000	12½				
108	Sonora Con	Mex.	5,000,000	200,000	25	*			
109	South Bodie, G	Cal..					Mar	1882	.15
110	South Bulwer, G	Cal..	10,0 0,000	100,000	100	100,000	May	1881	.25
111	South Hite	Cal..	10,000,000	100,000	100	195,000	Jan.	1883	.05
112	South Pacific	Cal..	500,000	100,000	5				
113	State Line, S	Nev..	250, 00	250,000	1				
114	St. Louis & Mex., S.	Mex.	5,000,000	500,000	10	*			
115	St Louis & St Elmo	Colo.	2,000,000	200,000	10				
116	St. L & St. Felipe, G. S.	Mex.	1,500,000	150,000	10				
117	St. L & Sonora, G. S.	Mex.	1,500,000	150,000	10				
118	St. Louis & Yavapai	Ariz.	3,000,000	300,000	10				
119	Sunday Lake, I	Mich	1,250,000	50,000	25				
120	Sullivan, G. S. L	Me..	500,000	100,000	5	125,000	Dec.	1882	.25
121	Sutro Tunnel	Nev..	20,000,000	2,000,000	10	*			
122	Tamarack, C	Mich.	1,000,000	40,000	25	520,000	Apl.	1885	3.00
123	Taylor-Plumas, G	Cal..	1,000,000	200,000	5	*			
124	Tioga Cons., G	Cal..	10,000,000	100,000	10	*			
125	Todos Santos, S	Mex.	1,000,000	100,000	100	325,000	Oct.	1882	.10
126	Tuscarora, S	Nev.	10,000,000	100,000	100	110,000	Oct.	1881	.15
127	Unadilla, S	Colo.	50,000,000	500,000	100	*			
128	Union Con., G. S	Nev..	10,000,000	100,000	100	2,085,000	Apl.	1886	.25
129	United M. Lundy, G	Cal..	1,000,000	200,000

NEW YORK MINING STOCKS.

DIVIDEND-PAYING MINES.

NAME AND LOCATION OF COMPANY.	HIGHEST AND LOWEST PRICES PER SHARE AT WHICH SALES WERE MADE.												SALES.
	Aug. 14.		Aug. 16.		Aug. 17.		Aug. 18.		Aug. 19.		Aug. 20.		
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Alice, Mon													
Amie Con., Co													
Argenta													
Bassick, Co													
Belle Isle, Ne													
Bodie Cons., Ca	2.50	2.40	2.65	2.60	2.65				2.50		2 60		1,600
Breece													
Bulwer, Ca	.89		.92						.97		.92	.91	3,600
Caledonia													
Carbonate Hill													
Chrysolite, Co													
Colorado Central													
Cons. Cal. & Va., Ne	2.15		2.15		2.15		2.15				2.10		4,500
Crown Point													
Dunkin													
Eureka Cons., Ne	2.45								2.70	2.60			370
Father de Smet, Dk													
Freeland													
Gold Stripe, Ca													
Gould & Curry, Ne													
Grand Prize, Ne													
Green Mountain, Ca													
Hale & Norcross, Ne	1.80		1.80				1.80		1.80		1.70		1,300
Helena													
Homestake, Dk	18.75		20.00	19.50	19.00	18.50	18.50				19.50		460
Horn-Silver, Ut	2.30								2.35		2.30	2 25	800
Independence, Ne													
Iron Silver, Co													
Leadville C., Co			.30										200
Little Chief, Co													
Little Pittsburg, Co					.25								300
Martin White, Ne													
Moulton													
Navajo, Ne	.60		.67		.68		.67	.65	.65		.67	.60	5,900
North Belle Isle, Ne			.93				1.00				1.35		1,300
Ontario, Ut	27.75				25.75	25.50	29.00	25.50					305
Ophir					1.40		1.25						700
Osceola													
Plymouth	15.25										15.25		200
Quicksilver Pref., Ca											24.00		200
" Com., Ca													
Quincy													
Robinson Cons., Co											.55		500
Savage, Ne							2.25						200
Sierra Nevada, Ne	.68								.63				900
Silver King, Ar													
Spring Valley, Ca													
Standard, Ca			.85		.80								700
Stormont, Ut											.15		1,500
Tip Top, Ar													
Yellow Jacket	1.00				.95								750

NON-DIVIDEND-PAYING MINES.

NAME AND LOCATION OF COMPANY.	HIGHEST AND LOWEST PRICES PER SHARE AT WHICH SALES WERE MADE.												SALES.
	Aug. 14.		Aug. 16.		Aug. 17.		Aug. 18.		Aug. 19.		Aug. 20.		
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Albion													
Alta													
American Flag													
Barcelona, G													
Bechtel Con., G													
Belvidere													
Belcher													
Best & B'icher, G. S					1.25								100
Big Pittsburg, S. L													
Bowman Silver													
Bull-Domingo, S.L													
Castle Creek													
Central Ariz'na, S													
Cons. Imperial													
Con. Pacific							.06½						100
Cusi													
Decatur													
Durango, G													
Eastern Oregon													
Goodshaw, G													
Harlem M.& M.Co													
Harshaw													
Kossuth													
Lacrosse, G						.09		.09				.09	4,800
Mariposa Pref., G													
" Com., G													
Mexican, G. S					2.60					2.70		2.70	750
Mono													
New Pittsburg													
North Standard, G													
N. Horn-Silv'r, S L													
Pri'nt'l & Miller, S													
Plutus													
Potosi													
Rappahannock, G					.10		.10						3,100
Red Elephant, S													
Ridge													
Silver Cliff, S													
Sonora Con													
South Bodie, G													
South Bulwer, G													
South Hite													
South Pacific													
State Line, 1 & 4, S													
" Nos. 2 & 3, S													
Sutro Tunnel	.10	.08	.07	.06	.08	.07	.07		.07		.08		800
Tamarack													
Tioga					.20								500
Unadilla, S													
Union Cons., G. S	.50												1,200
Utah													

Dividend shares sold, 26,385. Non dividend shares sold, 23,250.

at $2.60 and $2.70. Standard, at 85 and 80c. Quicksilver Preferred sold at $24.

Considerable activity has been displayed in Sutro Tunnel, of which some 12,800 shares changed hands at from 10@7c.; 2000 shares were sold at public auction in this city on the 18th inst., at 7c. a share. Consolidated California & Virginia has been firm at from $2.15@$2.10. Hale & Norcross, at from $1.80@$1.70. Belcher, at $1.25. Savage, at $2.25. Ophir, at from $1.40@$1.25. Some interest was shown in Navajo, which opened and closed at 60c., and during the week going to 68c. North Belle Isle shows an upward movement, advancing from 93c.@ $1.35. Eureka is quiet at from $2.45@$2.70.

In another column, our readers will find some information regarding the Horn-Silver Company that is not of a very encouraging nature for the present. The stock has been firm at from $2.35@ $2.25. The Ontario has declared its usual dividend of $75,000, which brings the dividends paid up to the handsome figure of $7,625,000. The stock has been quiet and active, showing a downward movement, as compared with last week, when it was quoted at $27 and $26. This week's price shows $25.75@ $25.50. Stormont remains at 15c.

All the interest in the Colorado stocks seems now to be centered in St. Louis, where the stock of most of the best companies is now dealt in. Our regular weekly St. Louis report has not been received as we go to press, so we can give but little information about these stocks, which in this market are almost entirely neglected. The dealings during the week show a few sales of Leadville at 30c., Little Pittsburg 25c., Chrysolite 49c., and Lacrosse 9c.

Much interest has been shown in Homestake, at prices ranging from $18.50@$20. The monthly dividend of $50,000 has made its appearance, and the total amount paid to date now stands at $3,518,750.

Rappahannock is firm at 10c. Good reports are received from the mine.

The total transactions during the week were 49,735 shares, showing a decrease of 8935 shares, as compared with the preceding week.

Coal Stocks.

The trunk line troubles and scarce money had a very demoralizing effect upon the market earlier in the week, but the feeling now is very hopeful. The coal stocks had a severe decline, but are improving under a greater condition in the coal trade. Insiders are talking very much higher prices for Lackawanna, and are not looking for much of a decline before the big advance sets in. We have the best of reasons for thinking that the Delaware & Hudson dividend to be declared next week will be 1¼ per cent, the same as the last.

The dealings in Lackawanna aggregated 207,937 shares, at $130@$125¾, closing at $129. Delaware & Hudson, with sales of 11,435 shares at $99⅞@$97, closed at $99¼. Jersey Central ranged between $55½ and 51⅞, and closed at $54¼, with sales of 24,407 shares. Reading, with transactions of 8005 shares, at $26⅞@$24⅛, closed at $26⅝.

San Francisco Mining Stock Quotations.

Daily Range of Prices for the Week.

NAME OF COMPANY.	CLOSING QUOTATIONS.					
	Aug. 13.	Aug. 14.	Aug. 16.	Aug. 17.	Aug. 18.	Aug. 19.
Albion						
Alpha						
Alta	.70	.70	.75	.75	.85	.85
Argenta						
Bechtel						
Belcher	1.12½					1.25
Belle Isle						
Best & Belcher	1.50	1.50	1.37½	1.37½	1.37½	1.25
Bodie	2.50	2.75	2.62½	2.75	2.75	2.50
Bullion						
Bulwer	.90	1.00	1.37½	1.00	1.00	1.00
Challar	1.00	1.12½	1.00	1.00	.95	.85
Con. Pacific						
Con. Cal. & Va	2.25	2.25	2.25	2.25	2.25	2.25
Crown Point	.95	.95			1.00	1.00
Day						
Elko Cons						
Eureka Cons			2.50	2 37½	2.50	
Exchequer						
Gould & Curry	1.12½	1.12½	1.12½	1.00	1.00	1.00
Grand Prize						
Hale & Norcross	1.25	1.12½	1.75	1 75	1.75	1.62½
Independence						
Martin White						
Mexican	.65	.70	.70	.70	.70	.65
Mono	2.37½	2.50	2.75	2.62½	2.75	2.50
Mount Diablo						
Navajo	.70	.75	.75	.70		.70
Northern Belle						
North Belle Isle						
Ophir	1.25	1.37½	1.37½	1.37½	1.25	1.25
Overman						
Potosi	.60	.65	.60	.65	.55	.50
Savage	2.62½	2.75	2.62½	2.87½	2 62½	2.62½
Scorpion						
Sierra Nevada	.65	.65	.60	.60	.60	.50
Silver King						
Tip-Top						
Union Cons	.55	.55		.55		.55
Utah	.85	.80		.90	.75	.70
Wales Cons						
Yellow Jacket	1.00	1.00	1.00	1.12½		1.00

ASSESSMENTS.

COMPANY.	No.	When levied.	Delinquent in office.	Day of sale.	Amount.
Baltimore		July 28	Aug. 24	Aug. 24	.01
Cons. Amador, Cal	13	July 15	Aug. 16	Aug. 31	.15
Cons. Imperial, Nev	23	Aug. 5	Sept. 8	Sept. 28	.10
Courier, Idaho		Aug. 11	Sept. 16	Oct. 5	.12½
Desiré, Dak	1	June 28	*Aug 30	Sept. 18	¼
Enterprise, Dak	12	July 20	Aug. 25	Sept. 15	.01
Eureka Cons., Nev	10	July 28	Sept. 6	Sept. 27	1.00
Far West, Dak	10	Aug. 13	Sept. 17	Oct. 6	.02
Globe, Dak	1	June 26	July 27	*Aug 26	⅛
Golden Fleece, Cal	53	May 20	*July 31	*Aug 21	20.00
Hailey Hill, Utah		Aug. 2	Sept. 9	Sept. 25	.01
Hale & Norc'ss, Nev	91	July 16	Aug. 18	Sept. 8	.50
Homeward Bo'd, Dak	2	Aug. 6	Oct. 4	Oct. 25	⅛
Indian Spring, Cal	6	July 26	Aug. 30	Sept. 30	.03
Iron Mountain, Dak	1	May 31	*Sept. 1	*Sep 20	¼
Keokuk, Dak	2	Aug. 12	Sept. 15	Oct. 15	¼
La Plata, Dak	3	July 6	Aug. 9	Aug. 28	.02
Lockport, Dak	1	July 12	*A'g 17	*Sept. 4	¼
Loreto, Mex	9	Aug. 5	Sept. 8	Sept 20	.40
Lower Level, Dak	1	July 13	Aug. 20	Sept 10	¼
Monarch, Dak	1	Aug. 3	Sept. 6	Sept. 15	⅛
May Flower Gravel, Cal	31	July 1	Aug. 9	Aug. 31	.25
New Coso, Cal	19	July 13	Aug. 27	Sept. 13	.20
New Discovery, Dak	1	July 10	Aug. 17	Sept. 2	¼
New Era, Dak	1	July 10	Aug. 10	Aug. 25	⅛
Occidental, Nev	7	Aug. 9	Sept. 13	Oct. 4	.30
One Thousand and One Cons., Cal	20	July 6	Aug. 9	Aug. 30	⅛
Overman, Nev		July 9			.15
Panalteta, Mex	2	July 14	Aug. 20	Sept. 10	.30
Pennsylvania, Cal	7	June 21	July 21	Aug. 23	.30
Rainbow, Dak	3	June 1	*Aug 30	*Sep. 16	¼
Ruby, Dak	1	Aug. 10	Sept. 15	Oct. 15	.01
Silver Star, Dak	1	July 8	*Sep 10	Sept. 27	¼
Spruce Gulch, Dak	1	June 22	*Aug 24	Sept. 8	¼

*The delinquent day of the Iron Mountain was postponed to September 1st, and the day of sale to September 20th; of the Rainbow, to August 30th and September 16th; of Golden Fleece, to July 31st and August 21st; of Desiré, to August 30th and September 18th; of Globe, to August 26th; of Spruce Gulch, to August 24th and September 8th; of Lockport, to August 17th and September 4th; of Silver Star, to September 10th and September 27th.

The sale, at public auction, at No. 19 Congress street, Room 11, Boston, Mass., of all stock of the Minnesota Mining Company, on which the assessment of one dollar per share, due and payable May 10th, 1886, has not been paid, has been postponed from August 18th to September 8th, 1886.

BOSTON MINING STOCK QUOTATIONS.

	Aug. 13.		Aug. 14.		Aug. 16.		Aug. 17.		Aug. 18.		Aug. 19.		Sales.
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Amie													
Allouez	1.87½	1.75	1.75	.....	1.75	.....	1.75	.....	.....	.....	1.50	1.25	1,285
Atlantic													
Arnold	.27½	.....	.25	.....	.25	.....	.....	.....	.25	.....	.25	.....	1,150
Belle Isle													
Blue Ridge													
Bodie													
Bonanza D									.87½	.75			200
Boston & Montana					3.	.....	3.	.....	2. 62½	.....			1,500
Bowman Silver	.09	.....			.06	.....	.....	.....	.08	.....			1,200
Bijou Cons													
Breece	.....	.....	.15	.....					.15	.....	.15	.....	500
Bulwer													
Calumet & Hecla	216.	.....	215.	.....	215.	214.	.....	.....	.....	.....	212.	.....	38
Catalpa	.24	.....	.25	.....	.25	.....	.23	.....	.23	.....	.23	.....	1,400
Cedar Spring													
Central													
Con. Pacific													
Con. Virginia													
Copper Falls													
Crescent			.10	.....			.09	.....	.09	.....	.09	.....	1,100
"Cusi"	.50	.....	.50	.....	47½	.....	.50	.....	.50	.....			1,600
Dunkin					.32	.31	.30	.....	.30	.....			2,700
Empire											.65	.....	500
Eureka													
Franklin	10.50	.....	10.50	.....	11	10⅞	10 75	.....	10.75	10⅝	10.25	10.00	1,613
Freeland											1.20	.....	10
Grand Prize													
Huron			1.37½	.....	1.37½	.....	1.37½	.....	.....	.....	1.37½	1.25	500
Mascot													
Ontario													
Osceola	13.75	13.											35
Pewabic													
Quincy							48.	.....	47.50	.....			80
Ridge													
Robinson													
Security	.45	.....											100
South Side													
Standard													
Sutro Tunnel							.06	.....	.04	.....	.05	.....	1.500
Stormont	.13	.....	.13	.....	.14	.....	.13	.....	.13	.....	.13	.....	1,500
Tamarack													

COAL STOCKS.

NAME OF COMPANY.	Par value of shares.	Quotations of New York stocks are based on the equivalent of $100. Philadelphia prices are quoted so much per share. Aug. 14. H.	Aug. 14. L.	Aug. 16. H.	Aug. 16. L.	Aug. 17. H.	Aug. 17. L.	Aug. 18. H.	Aug. 18. L.	Aug. 19. H.	Aug. 19. L.	Aug. 20. H.	Aug. 20. L.	Sales.
Barclay Coal														
Cameron Coal	50			17¾		17¾		17⅝		18¼	18	18	17⅝	1,007
Col., C. & I	10	28½	27¾	28½	28	28	27½	27	25⅝	27⅞	26¾	28⅜	27½	9,615
Ches. & O. RR	100							8¼	8⅛			8½		650
Consol. Coal	100													
Cumb. C. & I	100													
Del. & H. C	100	99⅞	99⅛	99⅝	99⅛	99⅜	98¼	98½	97	98⅝	98	99⅛	99⅜	11,435
D., L. & W. RR	50	130	129½	129⅞	128½	129⅜	128¼	128½	125¾	127½	126	129	127⅞	207,937
Elk Lick Coal Co														
Lehigh C. & N.†	50	51¾		51¾	51⅛	51⅛	50⅞	50¾	50¼	51				2,110
Lehigh Valley RR.†	50	58	.....	57¼	57	57¼	.....	57¼	.....	57¾	57¼	.....	.....	659
L. & W. C. & I. Co														
Maryland Coal	100													
Montauk Coal	100													
Morris & Essex	50													
New Central Coal	100													
N. J. C. RR	100	55½	54⅛	55⅜	54½	55	53¾	53½	51⅞	53½	52¾	54¼	53¼	24,407
N. Y. & S. Coal	50													
Penn. Coal	50													
Penn. RR.†	50	57⅛	57¾	57⅞	57¾	57⅝	57¼	57	56⅛	57½	56¾			16,627
Ph. & R. RR.*	50	26⅞	26⅛	26¾	26¼	26	25¼	25½	24⅞	25⅞	25⅛	26⅜	25¾	18,319
Spring Mountain	50													
Westmoreland Coal†	50													

* Of the sales of this stock, 10,314 were in Philadelphia, and 8,005 in New York.
† The quotations for these stocks are not percentage, but actual price. Total sales, 292,766.

Dividends.

Big Bend Hydraulic Mining Company, of Dakota, has declared dividend No. 31, of three cents a share, or $6000, payable on the 20th inst., in New York City.

Homestake Mining Company, of Dakota, has declared dividend No. 97, of 40 cents a share, or $50,000, payable on the 25th inst., at Messrs. Lounsbery & Co.'s, No. 15 Broad street, New York City.

Ontario Silver Mining Company, of Utah, has declared dividend No. 123, of 50 cents a share, or $75,000, payable on the 31st inst., at Messrs. Lounsbery & Co.'s, No. 15 Broad street, New York City.

Philadelphia Natural Gas Company, of Pennsylvania, has declared a dividend of one per cent, payable on the 20th inst., at Pittsburg.

Plymouth Consolidated Gold Mining Company, of California, has declared dividend No. 40, of twenty five cents a share, or $25,000, payable September 5th, at No. 23 Nassau street, New York City.

Pipe Line Certificates.

Messrs. Watson & Gibson, commission brokers, No. 49 Broadway, report as follows for the week:

The oil market during the past week has been depressed on reports of the increasing production of the Washington field. Its maximum was reached Thursday, in an estimated output of 15,000 barrels, but yesterday the figures were reduced to 14,000. Bears assert that producers could at their will increase the output of that district, and that Lima, Ohio, is a dangerous field. The tenor of all the dispatches from oildom is bearish, and has been so for a month. Every office-boy is bearish, and the common opinion is, that the market is a sure sale. The public has been warned off, room traders as a rule are short or out of the market at the close of each day's business, and hence we must conclude that certificates are concentrated in strong hands. Speculatively, then, we believe that the market is a purchase for at least a five cent-rise. This opinion need not be accepted by readers, for it is an exceptional one—very few brokers entertaining such sentiments.

The following table gives the quotations and sales at the Consolidated Stock and Petroleum Exchange:

	Opening.	Highest.	Lowest.	Closing.	Sales.
Aug. 14	60¼c.	61⅞c.	60¼c.	61½c.	3,125,000
16	61¼	62⅛	61¼	62⅛	3,043,000
17	62⅛	62¾	61½	61½	2,745,000
18	61	61½	60¼	60⅜	2,766,000
19	60	61⅜	60	61⅜	4,259,000
20	61⅛	62¼	61⅝	62⅜	2,810,000
Total sales					18,748,000

Boston Copper and Silver Stocks.

[From our Special Correspondent.]

BOSTON, August 19.

The market for copper stocks the past week has ruled fairly steady, but the difficulty of getting money on collaterals of this sort has had a somewhat depressing tendency although prices have not declined to any great extent, and there has been no pressure to sell. Calumet & Hecla declined to $214, but sales were in small lots, and only 33 shares sold in all; price to-day, $212 bid, $213 asked. Quincy sold at $48 — same as last week, at which 70 shares were taken. Franklin, being the most active of the dividend-paying mines, felt the influence of tight money, and declined to $10¼ to-day, although sales were made on Monday of 1000 shares at $10⅛@$11, and but for the trouble in the money market, would no doubt have sold at much higher figures; only 200 shares were sold at $10¼ to-day, and this was a forced sale, and $10¼ was bid afterward. Osceola sold at $13¾, for a small lot, early in the week, but was offered at $13 to-day. Huron sold at $1¼ (100 shares), and Allouez at $1⅞@$1⅞, 285 shares. Total sales of copper stocks for the week, 1908 shares, against 2620 last week.

The silver stocks are quiet and dull. Boston & Montana sold at $3, same as before. Bonanza declined to 75c. Dunkin also declined from 35c.@30c. Bowman sold at 6c. Catalpa, 23c. "Cusi", 50c. There is no special activity in this class of stocks, and orders are scarce to buy and sell.

FREIGHTS.

The latest actual charters to August 20th per ton o 2240 pounds:

To	From Philadelphia	From Baltimore.	From New York shipping ports.
Alexandria	.60		
Annapolis	.60		
Baltimore	.58§		
Bangor	1.05*	1.15	1.10
Bath, Me	1.05*	1.15	.85*
Beverly	1.05*		.85*
Boston, Mass	1.05*	1.15	.85*
Bridgeport, Conn.		1.00	.55
Brooklyn		1.00	.18§
Cambridge, Mass.	1.05*‡		.88*
Cambridgeport	1.05*‡		.88*
Charleston, S. C.	.70@ 75	.80	
Charlestown	1.05*		.85*
Chelsea	1.05*		.85*
Com. Pt., Mass.	1.05*		.85*
E. Boston	1.05*		.85*
East Cambridge	1.05*‡		.85*
E.Gr'nwich,R. I.			.80
Fall River	.90*	1.00	.75@.80
Galveston		3.00	
Gardner	1.05*¶		
Georgetown, D.C.	.60		
Gloucester	1.05*		
Lynn	1.05		1.35
Marblehead	1.05*		
Newark		1.10***	
New Bedford	.90*	1.00	.80
New-Berne	.75		
Newburyport	1.20*	1.30¶	1.00*
New Haven		1.00	.55
New London		1.00	.70
New York		1.00	
Newport			.75@.80
Norfolk, Va	.50		
Norwich			.75@.80
Pawtucket			.75@.80
Portland, Me	1.05*	1.15	.85*
Portsmouth, N.H.	1.15*	1.25	.95*
Portsmouth, Va.	.50		
Providence	.90*	1.00	.75@ 80
Quincyport			1.10
Richmond, Va	.60		
Rockport	1.25*		
Roxbury, Mass.	1.05*		
Saco	1.05*¶		
Salem, Mass.	1.05@1.15*		.85*
Savannah	.90	1.00	
Somerset		1.00	.75
Washington	.60		
Williamsb'g, N.Y.		1.00	
Wilmington, N.C.	.80	1.00	

* And discharging. † And discharging and towing. ‡ 3c. per bridge extra. § Alongside. ‖ And towing up and down. ¶ And towing. †† Pilotage. ** Below bridge. *** Old B. L.

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